ONTARIO WOMEN'S HEALTH STATUS REPORT

PREPARED FOR

THE ONTARIO WOMEN'S HEALTH COUNCIL

BY

THE UNIVERSITY HEALTH NETWORK WOMEN'S HEALTH PROGRAM

THE CENTRE FOR RESEARCH IN WOMEN'S HEALTH

THE INSTITUTE FOR CLINICAL EVALUATIVE SCIENCES

ONTARIO
WOMEN'S
HEALTH
COUNCIL

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TABLE OF CONTENTS

OVERVIEW .... **v**

PART ONE: DEMOGRAPHICS

1. SOCIODEMOGRAPHICS, BY DOUG MANUEL AND SUSAN SCHULTZ 3
2. MORTALITY INDICATORS, BY DOUG MANUEL, DAR MALAVIARACHCHI, LOUISE PICARD, AND VALERIE MANN 21

PART TWO: MORBIDITY INDICATORS

3. HIV / AIDS, BY ROBERT S. REMIS 37
4. SEXUALLY TRANSMITTED DISEASES, BY HAJERA ROSTAM AND ENZA GUCCIARDI 47
5. MENTAL ILLNESS, BY ELIZABETH LIN, ANNE RHODES, AND PAULA GOERING 64
6. EATING DISORDERS, BY ENZA GUCCIARDI AND DONNA E. STEWART 75
7. SUICIDE AND SUICIDE BEHAVIOUR, BY PAUL S. LINKS 86
8. SEXUAL ASSAULT AND INTIMATE PARTNER VIOLENCE, BY MARSHA M. COHEN AND DONNA ANSARA 96
9. BONE DENSITY TESTING, BY SUSAN JAGLAL 113
10. HIP AND KNEE REPLACEMENT, BY JACK WILLIAMS, GILLIAN HAWKER, DON DEBOER, AND HANS KREDER 121
11. WORK INJURIES, BY JENNIFER PAYNE AND CAM MUSTARD 138
12. DISABILITIES, BY DEBORAH STIENSTRA AND ENZA GUCCIARDI 146

PART THREE: REPRODUCTIVE HEALTH

13. FERTILITY, BY KAREY IRON, SHERRI ENNIS, AND DOUG MANUEL 165
14. TEEN PREGNANCY, BY ENZA GUCCIARDI 175
15. INDUCED ABORTION, BY KAREY IRON AND LORRAINE FERRIS 178
16. HOSPITAL OBSTETRIC CARE, BY GEOFFREY M. ANDERSON 191
17. HYSTERECTOMY, BY ANTONI BASINSKI 200

PART FOUR: HEALTH BEHAVIOURS

18. SELF-REPORTED HEALTH PRACTICES, BY SUSAN BONDY AND SUSAN SCHULTZ 217
19. CANCER SCREENING, BY VERNA MAI 243
20. SMOKING, BY KIM BERCOVITZ, ROBERTA FERRENCE, AND BRONWEN WALLER 254
21. PHYSICAL ACTIVITY AND WEIGHT, BY JILL SLACK AND ENZA GUCCIARDI 269

PART FIVE: SUBPOPULATIONS

22. ADOLESCENT GIRLS, BY MARSHA COHEN 287
23. LONE MOTHERS, BY ENZA GUCCIARDI 301
24. POSTMENOPAUSAL / SENIOR WOMEN, BY RUHEE CHAUDHRY AND ANGELA CHEUNG 314
25. IMMIGRANT / VISIBLE MINORITY WOMEN, BY ILENE HYMAN 338
26. ABORIGINAL WOMEN, BY SHERRY GRACE 359
27. RURAL / NORTHERN WOMEN, BY ENZA GUCCIARDI AND ANNA BIRNIE-LEFCOVITCH 374

CONTRIBUTORS **387**

OVERVIEW

This Ontario Women's Health Status Report, commissioned by the Ontario Women's Health Council, is the first comprehensive attempt to compile current information in a single volume on the health, and the determinants of health, of Ontario women. It also attempts, where possible, to compare this information with other regions in Canada and beyond.

DEFINITION

In this report, we have used the Ontario Women's Health Council's working definition of women's health: Women's health involves women's emotional, social, cultural, spiritual, and physical well-being, and it is determined by the social, political, and economic context of women's lives as well as by biology. This description is defined by, and recognizes the validity of, women's perceptions and life experiences of health and illness, the values and knowledge of women, and the role of women both as users and as providers of health care.

OVERALL MESSAGE

In general, the overall message of this report is positive. The life expectancy of Ontario women is among the highest in the world. At the beginning of the 20th century, the life expectancy of men and women was almost equal, but by the beginning of the 21st century, Ontario women lived five years longer than men. Remarkable progress has been made in controlling infectious diseases and in improving maternal and child health.

However, much remains to be done. Many diseases are more common among women than among men (e.g., breast cancer, depression, and autoimmune diseases). Cardiovascular disease remains the leading cause of death and disease, and there is evidence that health risk behaviours such as smoking are beginning to narrow the gap between the life expectancy of Ontario men and women. Although Ontario women now make up about half the paid workforce, they continue to spend more time than men in attending to family needs. These responsibilities contribute in part to increased stress and rates of depression. Violence against women remains a major cause of mental and physical health problems in women. To address some of these problems, gender differences that underlie behaviours must be recognized.

Moreover, there are pronounced regional and subpopulation differences in health and health risk behaviours, as well as inequalities in health services, that require attention. Income inequality is a well-established determinant of health and a major contributor to health disparities between regions and subpopulations.

While rates of obesity continue to rise among Ontario women, more adolescent girls and young women exhibit disordered eating patterns. Concurrent with the rise in obesity are the low rates of regular participation in physical activity. Sex-role socialization and multiple role stress discourage many women from participating in physical activity.

Although the majority of Ontario women enjoy excellent health, there are specific subgroups of women who tend not to share in this good fortune. In this report, we identify health issues for Aboriginal women, women with disabilities, lone mothers, and immigrant women.

As Ontario's population ages, we can expect more chronic health problems to emerge among both men and women, but senior women are less likely to have family caregivers and more than twice as likely to live in poverty as men. Chronic diseases such as cardiovascular disease, diabetes, and osteoporosis are especially prevalent in mid-life and senior women.

Demographic shifts, differences in determinants of health, health risk behaviours, and regional and subpopulation disparities in health and health services are all critical issues. They must continue to be addressed by innovative policies and by health and social services that are comprehensive, accessible, and culturally and gender consistent. More research is needed to address this diversity. Multi-sectoral initiatives are required to develop comprehensive approaches to reduce disparities and to improve women's health. And an ideological shift is required to develop a framework for women's health that recognizes the context of women's lives and the importance of beginning health promotion activities early and continuing them throughout the life-span.

SOME CAVEATS

We were guided in our choice of topics by the Ontario Women's Health Council Request for Proposals. Future work should extend to include an even broader range of health determinants and disease states. It is important to note that, for the most part, we relied on data generated by other organizations and surveys. These data may have been generated at different times, used different indices, and may not be directly comparable. The quality of the data can be variable, and errors can arise for a variety of reasons. We have identified several places where inadequate data exist or where they are not being optimally used. Where data was not available, literature reviews were undertaken. In all cases, we have attempted to specify the data source and year, and we have used the most reliable and recent data available. We were limited in our policy recommendations by a lack of evidence-based interventions.

WORK PLAN

This project was conducted by a consortium composed of the University Health Network Women's Health Program (UHNWHP), the Institute for Clinical Evaluative Sciences (ICES), and the Centre for Research in Women's Health (CRWH), and of research associates of each of these three groups. A steering committee was formed to oversee the project, with two representatives from each organization in the consortium (Drs. Donna Stewart and Angela Cheung from UHNWHP; Drs. Lori Ferris and Jack Williams from ICES; and Drs. Marsha Cohen and Ilene Hyman from CRWH). This steering committee met bi-weekly from March to November 2001 with project coordinator Enza Gucciardi, MHSc. We are also indebted to Karey Irons and Pam Slaughter, who coordinated the chapters from ICES.

We undertook the following activities to fulfill the terms of reference: a review of published and unpublished literature in the English language; an examination of recent surveys in Canada and of information from health databases, health websites, and key informants; and regular meetings with members of the research team. We have divided the report into five parts — Demographics, Morbidity Indicators, Reproductive Health, Health Behaviours, and Subpopulations — each of which comprises several chapters. The key messages and policy recommendations contained in each chapter are set out below to provide readers with a rapid overview of our findings.

NEXT STEPS

As our work progressed, we identified many strengths in the Ontario health environment and many opportunities in which women could improve their health, but we also found some gaps and disparities. We see this report as a starting point and hope that it will attract interest, generate discussion, and act as a catalyst for vital and positive changes in research, self-care, policy, and services to advance the health of Ontario women.

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PART ONE: DEMOGRAPHICS

CHAPTER 1 – SOCIODEMOGRAPHICS

DOUG MANUEL AND SUSAN SCHULTZ

OVERVIEW

The aging of the baby-boom generation will continue to influence the demographic situation in Ontario. More health-care services will be needed as an increasing proportion of women enter the period of life when health needs are at their peak. This aging-population effect is curtailed somewhat by the 100,000 or more young immigrants who choose to reside in Ontario each year. By 2030 immigration will be the driving force for any further population growth — as the annual number of deaths surpasses the number of births.

There are indications that women, more than men, face challenges balancing paid work and other responsibilities. Women are more likely than men not to work owing to family responsibilities. Forty percent of lone-parent households headed by women live in poverty, five times the percentage of households living in poverty headed by couples.

BACKGROUND

Demography, the study of human populations, is described by David Foot as the "most powerful — and most underutilized — tool we have to understand and foretell the future" (Foot and Stoffman, 1997). The structure of the Ontario population and the influences of population change play a pivotal role in all aspects of life, from health status to social and economic conditions. This chapter examines important aspects of demographic change, including the aging baby boom, continuing immigration, and the changing pattern of women's work.

METHODS

Population and population change were examined using estimations and projections from Statistics Canada (Statistics Canada, 2001a). The future population size and age distribution of Ontario and its planning regions depend on several factors, including future migration, life expectancy, and birth rates. We chose moderate level assumptions for all these factors for population projections.

Every five years Statistics Canada gathers information on every Canadian through the Canadian census. Effort is made to contact every household to obtain basic demographic information such as the number and age of all residents. Twenty percent of households undergo a more detailed questionnaire to address economic and social aspects of life such as family structure, type and amount of work, and language or ethic background. The records are then aggregated by Statistics Canada to allow estimation of these factors for planning uses.

Various social indicators were examined using data from the 1996 Ontario Health Survey and the Canadian census. The Ontario Health Survey (OHS II) was a population-based household survey. The Ontario Ministry of Health requested that Statistics Canada augment the Ontario sample of the 1996/97 National Population Health Survey (NPHS) so that local level estimates could be produced. Random Digit Dialing (RDD) was used to contact potential respondents for the additional sample across 23 geographic areas that represent public health units (PHUs) or combinations of PHUs. Once a selected household was contacted, one randomly chosen member aged 12 or over was asked to respond to the survey, which was conducted using computer-assisted telephone interviewing (CATI). The OHS II comprises respondents, including those who are part of the longitudinal NPHS, who agreed to share their information with the provincial Ministry of Health. Overall, 36,892 respondents over the age of 12 were included as part of the OHS II.

The immigration status and ethnic origins of women in Ontario were examined using data from the OHS II. Women were grouped according to whether they were born in Canada or not. The latter group was further subdivided into recent immigrants (those who immigrated within the last ten years) and non-recent immigrants. With respect to ethnic origin, women were assigned a primary ethnic origin wherever possible, using an algorithm described elsewhere in this report.

Data on average income was obtained from the 1996 census. In their compilations of data from the census, Statistics Canada distinguishes between census families, economic families, and non-family persons (individuals who live alone, with non-relatives, or with relatives other than a spouse/partner or never-married children). This chapter reports average income for couple-headed and lone-parent census families and for male and female non-family persons. There is no adjustment for household or family size.

Incidence of low income was estimated using the data from the OHS II, rather than the census, because the census data available did not permit aggregations by the household type categories used elsewhere in this chapter. The income variable in the OHS II is adjusted for household type, but not for geographic region, as is the case with Statistics Canada's Low Income Cutoffs (LICO) (Statistics Canada, 1999). A comparison of the total low-income proportions by district health councils (DHC) with the census-based estimates for low-income economic families and unattached individuals for the same geographic regions suggests that the OHS II definition underestimates the incidence of low income, so these estimates should be treated as conservative.

Highest level of education was also estimated from the OHS II data. Education was aggregated into three categories: less than a high school education, a high school diploma (includes those who also reported some postsecondary education, but who failed to earn any type of postsecondary certificate, diploma, or degree), and postsecondary diploma or degree. Because education shows a very strong cohort effect, with overall education levels rising with successive age cohorts, the education figures reported here have been standardized to the 1991 Canadian population. This method removes any differences that are solely the result of a particular geographic area having an older or a younger population.

The variables on working status are based on questions in the OHS II dealing with current employment. Respondents who were not currently working were asked to provide an explanation. These responses were aggregated into three major categories: illness/disability, family responsibilities, and other. For women, the family responsibility category was disaggregated to illustrate the range of family responsibilities facing them.

Differences in occupation between men and women were examined using the Pineo-Porter Occupational Socioeconomic Classification Group data from the OHS II. These differences were aggregated into four categories.

Data from the 1996 Census were used to calculate unemployment and workforce participation rates for men and women.

INTERPRETIVE CAUTIONS

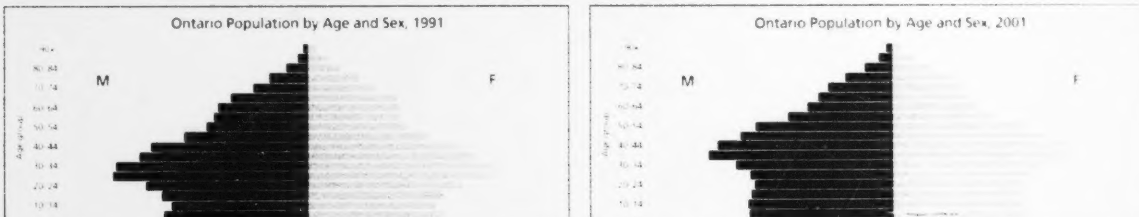
The OHS II data used in this report excluded people living in long-term care facilities, remote communities, and on reserves; therefore, estimates from these surveys do not represent the entire population. The OHS II was a self-report survey and all questions are subject to interpretation by each respondent, including measures used to estimate disability from chronic conditions. Although every effort is made to reach all Canadians in the census, hard-to-reach populations are underrepresented. These groups include some urban populations, such as homeless people, and some Native reserves that choose not to participate in the census.

FINDINGS AND DISCUSSION

POPULATION CHANGE

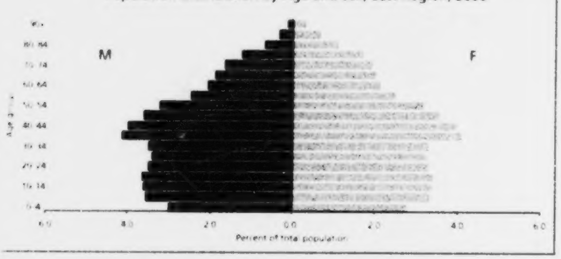
Exhibit 1-1 shows how the Ontario population is expected to grow and change over the next 20 years. Population growth is the combination of natural increase and net migration. Natural increase is the difference between the number of births and the number of deaths. In 2000 Ontario had a positive natural increase of 43,000 people, with 129,000 births and 86,000 deaths (Statistics Canada, 2001a). The low fertility rate of approximately 1.5 births for every woman is expected to continue, but the number of births will gradually increase in Ontario owing to a slow increase in the number of women in the childbearing years (see Chapter 13 on fertility). This increase will not be accompanied by the dramatic fluctuations seen in the past 50 years that resulted in the baby-boom and the echo generations.

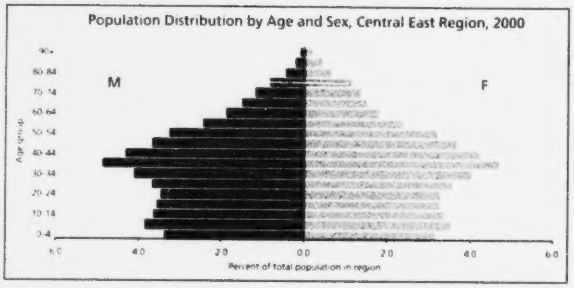
Exhibit 1-1. Ontario Population Estimates and Projections by Age and Sex, 1991–2021

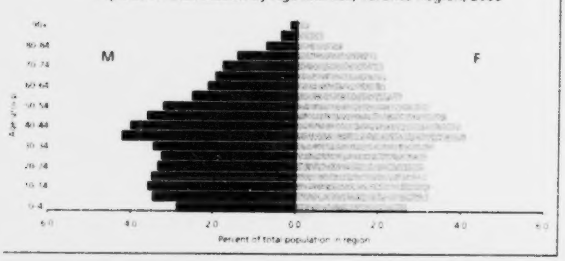


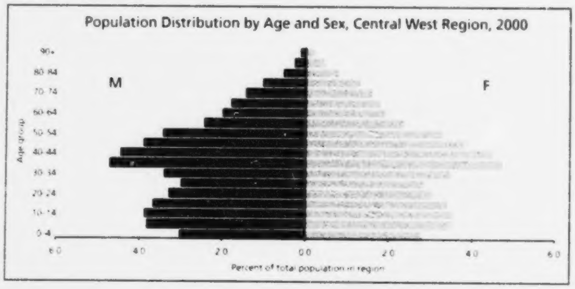
Data source: Statistics Canada, Catalogue No. 91-520.

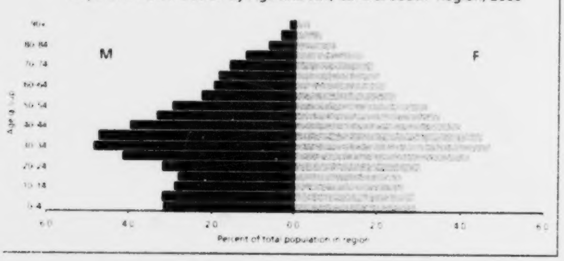
Exhibit 1-2. Population Distribution by Age, Sex, and Region, Ontario, 2000

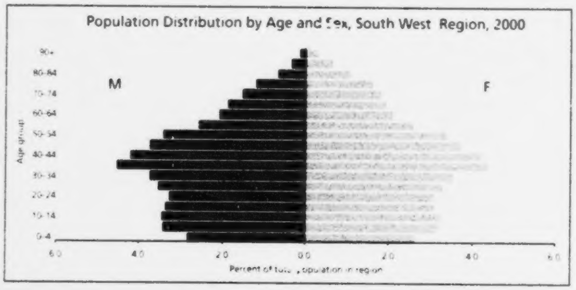

Population Distribution by Age and Sex, East Region, 2000

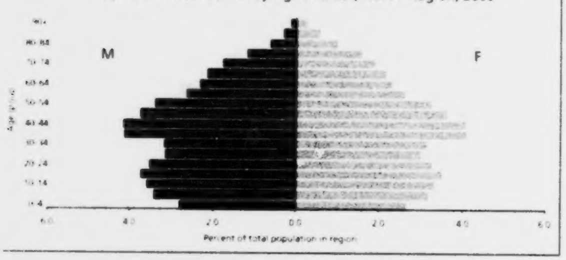

Population Distribution by Age and Sex, Central East Region, 2000

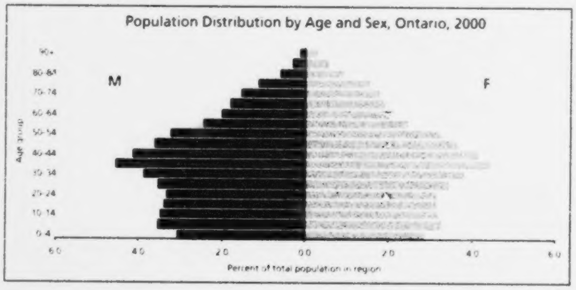

Population Distribution by Age and Sex, Toronto Region, 2000


Population Distribution by Age and Sex, Central West Region, 2000


Population Distribution by Age and Sex, Central South Region, 2000


Population Distribution by Age and Sex, South West Region, 2000


Population Distribution by Age and Sex, North Region, 2000


Population Distribution by Age and Sex, Ontario, 2000

Data Source: Statistics Canada, Catalogue No. 91-520.

The age-standardized death rate will likely continue to decline, but, with a greater number of older people, the total number of deaths (and crude death rate) will increase much faster than the increase in births. The combined effect will be a decline in natural population growth such that, by approximately 2030, for the first time, there will be no natural increase, as the number of deaths (approximately 145,000 deaths per year) will be equal to the number of births.

Approximately 50 percent of immigrants choose to land and live in Ontario, predominately in metropolitan areas (Statistics Canada, 1995). Since immigration levels vary depending on government targets and other factors, there is some uncertainty in the predicted number of future immigrants and, consequently, some uncertainty in current population projections. The present annual Canadian immigration target is 225,000, suggesting that Ontario will receive approximately 122,000 new immigrants each year. Over time, immigration will become the most important factor contributing to a population growth in Ontario.

The Ontario population will continue to "age," with an increasing proportion of elderly people. However, since most immigrants are relatively young, immigration reduces the effect of the increasingly older baby-boom generation. The dependency ratio, the ratio of young and older people to the working-age population, is lower with immigration than it would be without immigration. In the future, the shape of the population pyramids (Exhibit 1-1) will become more rectangular, exhibiting a pattern typical of a demographically mature developed population.

The regional population pyramids (Exhibit 1-2) demonstrate the effect of the different natural population growth and migration rates across the regions. Immigrants, who are often young adults or young families, tend to settle in urban/suburban regions such as Toronto, Halton-Peel, York, and Durham. There is likely an internal migratory effect as well, as young people migrate from rural and northern areas to urban centres. Finally, previous work has shown that, at the beginning of the 1990s, there was large variation in fertility rates. For example, in 1990 the general fertility rate ranged from a high of 59.8 births per 1,000 women in Central East to a low of 49.2 in Toronto (Johnson, 2000). By 1996, however, these differences in fertility rates among regions had narrowed considerably.

IMMIGRANT STATUS

Exhibit 1-3 shows that almost one-quarter of all women in Ontario are immigrants, including seven percent who have immigrated within the past ten years. The proportion of women born outside Canada varies substantially across geographic regions in Ontario, from a high of 48.4 percent in Toronto to a low of 6.3 percent in the Northern Shores DHC planning area. Toronto and Halton Peel have the highest proportion of women who are recent immigrants, 18.9 percent and 11.9 percent, respectively.

Immigrants are often regarded as healthier than people born in Canada because healthy people are more likely to choose to emigrate, and immigrants must pass an entry medical examination (Chen, Ng, & Wilkins, 1996; Chen, Wilkins, & Ng, 1996). This supposition is supported by evidence of higher life expectancy in neighbourhoods with a larger proportion of immigrants. A study comparing the utilization of physicians, specialists, and emergency department (ED) services among immigrants and non-immigrants found no difference in use of physicians' services (both general practitioner/family physician and specialist) between the two groups. However, there was a difference with respect to ED and specialist services, with immigrants less likely to use both compared with non-immigrants (Wen, Goel, & Williams, 1996).

Exhibit 1-3. Immigrant Status by Sex, Region, and District Health Council Area (%)

Ministry of Health Planning Region	**Women**			**Men**		
District Health Council Area	Canadian-Born	Non-recent Immigrant (>10 yrs)	Recent Immigrant (<10 yrs)	Canadian-Born	Non-recent Immigrant (>10 yrs)	Recent Immigrant (<10 yrs)
East	86.1	10.2	3.8	86.7	9.9	3.4
Champlain	82.7	11.9	5.5	84.9	10.5	4.6
Southeastern Ontario	93.0	6.7	0.3	90.3	8.9	0.9
Central East	80.6	16.2	3.2	80.0	16.3	3.7
Durham, Haliburton, Kawartha, and Pine Ridge	85.2	13.5	1.4	84.6	13.1	2.3
Simcoe-York	76.8	18.5	4.7	76.5	18.7	4.8
Toronto	51.6	29.5	18.9	55.4	28.4	16.2
Central West	71.6	19.6	8.8	73.4	19.2	7.4
Halton-Peel	65.3	22.9	11.9	68.2	22.5	9.4
Waterloo Region-Wellington-Dufferin	84.3	13.1	2.5	83.3	13.1	3.6
Central South	83.3	13.7	3.0	82.1	15.5	2.4
Grand River	89.1	8.8	2.0	84.3	14.7	1.1
Hamilton-Wentworth	79.6	16.5	3.9	79.7	16.8	3.5
Niagara	84.5	13.1	2.4	84.1	14.3	1.7
South West	85.5	11.4	3.2	86.7	10.8	2.5
Grey, Bruce, Huron-Perth	91.0	8.1	0.8	91.9	7.5	0.6
Thames Valley	83.1	12.7	4.3	85.4	11.8	2.8
Essex, Kent, and Lambton	85.3	11.5	3.2	85.2	11.6	3.2
North	92.3	7.2	0.6	94.2	5.5	0.4
Algoma, Cochrane, Manitoulin, and Sudbury	92.1	7.3	0.6	93.3	6.2	0.5
Northern Shores	93.7	5.5	0.7	96.2	3.7	0.1
Northwestern Ontario	91.2	8.4	0.4	93.6	6.0	0.5
Ontario	**75.7**	**17.0**	**7.2**	**77.2**	**16.58**	**6.22**

Data source: 1996/97 Ontario Health Survey

IMMIGRANT STATUS

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Champlain	82.7	11.9	5.5	84.9	10.5	4.6
Southeastern Ontario	93.0	6.7	0.3	90.3	8.9	0.9
Central East	80.6	16.2	3.2	80.0	16.3	3.7
Durham, Haliburton, Kawartha, and Pine Ridge	85.2	13.5	1.4	84.6	13.1	2.3
Simcoe-York	76.8	18.5	4.7	76.5	18.7	4.8
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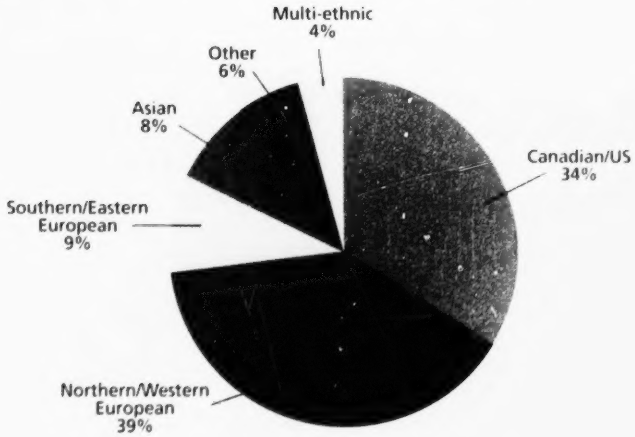
Northern Shores	93.7	5.5	0.7	96.2	3.7	0.1
Northwestern Ontario	91.2	8.4	0.4	93.6	6.0	0.5
Ontario	**75.7**	**17.0**	**7.2**	**77.2**	**16.58**	**6.22**

Data source: 1996/97 Ontario Health Survey

Exhibit 1-4. **Ethnic Origins of Women in Ontario, 1996/97**



Data source: 1996/97 Ontario Health Survey.

ETHNIC DIVERSITY

Exhibits 1-4 and 1-5 illustrate the distribution of the Ontario population by ethnic origin. In the overall Ontario population, the two largest groups are Northern/Western European (39% of women and 38% of men) and Canadian/US (34% of women and 35% of men). As with immigrant status, there is considerable variation across DHC areas in the diversity of the population. For example, the two largest groups — Northern/Western European and Canadian/US — account for over 95 percent of the population in the Grey-Bruce-Huron and Perth DHC planning area, but only 48.4 percent in Toronto and 50.3 percent in Halton-Peel.

HOUSEHOLDS

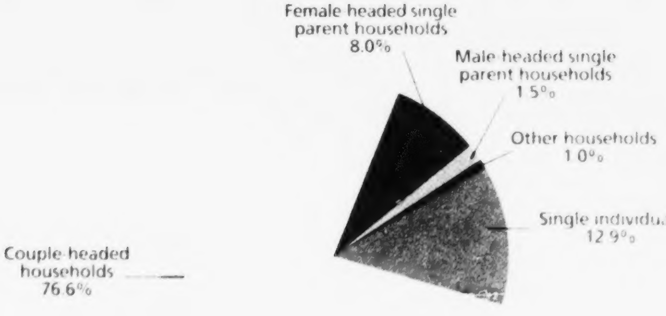
The population of Ontario was also examined by household type (Exhibit 1-6). Just over three-quarters of the Ontario population live in households headed by couples. Eight percent live in lone-parent households headed by women — approximately five times the number living in lone-parent households headed by men (1.5%). Across geographic areas (Exhibit 1-7), the more urban areas tend to have the largest proportion of single individuals, while the geographic distribution of lone-parent households headed by women shows less of a distinct pattern, with the highest proportion (11.5%) found in the Essex-Kent and Lambton DHC planning area of Southwestern Ontario. Regionally, the North has the smallest proportion of residents living in female-headed lone-parent households.

Exhibit 1-5. Ethnic Origin of Ontario Population by Sex, Region, and District Health Council Area (%)

Ministry of Health Planning Region District Health Council Area	Ethnic Origin — Women Canadian/ US	Northern/ Western European	Southern/ Eastern European	Asian	Other	Multi-ethnic	Ethnic Origin — Men Canadian/ US	Northern/ Western European	Southern/ Eastern European	Asian	Other	Multi-ethnic
East	37.6	49.1	3.1	3.5	3.0	3.8	38.7	48.5	4.1	4.3	2.5	2.0
Champlain	36.8	46.1	4.0	5.0	4.0	4.1	34.8	49.2	5.1	5.4	3.3	2.2
Southeastern Ontario	39.3	55.1	1.1	0.6	0.8	3.2	46.3	47.2	2.1	2.0	0.8	1.6
Central East	35.2	42.8	9.0	5.8	3.2	4.0	35.9	37.8	11.0	6.3	4.5	4.5
Durham, Haliburton, Kawartha, and Pine Ridge	39.9	46.6	5.3	2.1	2.8	3.4	39.4	45.0	5.2	2.2	3.6	4.7
Simcoe-York	31.4	39.7	12.0	8.8	3.6	4.5	33.2	32.3	15.4	9.4	5.3	4.4
Toronto	23.1	25.3	13.9	19.3	14.3	4.1	26.2	21.3	15.4	20.5	12.6	4.0
Central West	32.0	37.3	10.6	9.3	6.5	4.3	30.6	37.4	12.4	10.1	5.7	3.8
Halton-Peel	27.1	33.2	13.7	13.1	8.3	4.7	37.3	33.8	14.6	13.7	6.8	3.9
Waterloo Region-Wellington-Dufferin	42.1	45.7	4.2	1.6	3.0	3.5	37.0	44.3	8.2	3.2	3.7	3.7
Central South	35.7	39.8	13.1	2.5	3.7	5.2	42.3	38.1	10.9	2.2	3.6	3.0
Grand River	43.3	41.7	8.7	1.4	1.7	3.2	41.3	45.7	7.6	1.0	1.4	3.1
Hamilton-Wentworth	32.7	37.8	15.7	3.7	3.4	6.7	42.9	32.4	13.2	3.2	5.3	3.0
Niagara	34.9	41.1	12.5	1.9	5.0	4.6	42.1	41.5	9.6	1.6	2.5	2.8
South West	42.6	43.4	6.3	2.1	2.4	3.1	39.1	47.6	5.5	2.2	2.6	3.0
Grey, Bruce, Huron-Perth	45.0	50.2	1.8	0.1	0.7	2.3	39.0	55.9	2.2	0.5	0.7	1.9
Thames Valley	45.6	39.5	6.5	2.5	3.0	3.0	38.5	48.5	5.3	2.4	2.6	2.6
Essex, Kent, and Lambton	38.5	44.3	8.3	2.7	2.5	3.7	39.8	42.0	7.6	2.8	3.6	4.1
North	41.2	44.7	6.1	0.4	3.0	4.6	42.9	45.2	7.5	0.3	1.2	2.9
Algoma, Cochrane, Manitoulin, and Sudbury	36.0	50.3	5.7	0.3	4.5	3.2	37.1	50.9	7.5	0.4	1.5	2.5
Northern Shores	44.9	49.4	2.1	0.5	0.3	2.9	50.5	43.8	3.1	0.1	0.9	1.7
Northwestern Ontario	47.7	29.9	10.5	0.5	2.6	8.8	44.6	37.3	11.9	0.3	1.1	4.8
Ontario	**34.01**	**39.01**	**9.27**	**7.64**	**5.97**	**4.11**	**35.1**	**37.9**	**10.1**	**8.0**	**5.4**	**3.4**

Data source 1996 97 Ontario Health Survey

Exhibit 1-6. Population Distribution by Household Type in Ontario, 1996/97



Data source: 1996/97 Ontario Health Survey

Exhibit 1-7. Population Distribution by Household Type, Ontario, by Region and District Health Council Area (%)

Ministry of Health Planning Region District Health Council Area	Single Individuals	Couple-Headed Households	Female-Headed Single Parent Households	Male-Headed Single Parent Households	Other Households
East	14.8	73.7	8.5	2.0	1.1
Southeastern Ontario	13.9	74.8	9.3	1.0	1.0
Champlain	15.3	73.1	8.2	2.4	1.1
Central East	8.9	82.9	6.7	1.0	0.6
Durham, Haliburton, Kawartha, and Pine Ridge	9.9	80.5	8.1	1.2	0.4
Simcoe-York	8.1	84.8	5.6	0.9	0.7
Toronto	18.7	68.2	10.0	1.6	1.5
Central West	11.5	81.6	6.6	1.4	0.9
Halton-Peel	7.6	83.2	6.8	1.2	1.1
Waterloo Region-Wellington-Dufferin	13.3	78.4	6.2	1.6	0.6
Central South	9.5	77.0	8.7	1.3	0.7
Grand River	11.2	80.2	6.3	1.8	0.6
Hamilton-Wentworth	12.8	74.7	10.5	1.1	0.9
Niagara	12.3	78.1	7.8	1.4	0.4
South West	12.3	76.7	8.2	2.2	0.8
Grey, Bruce, Huron-Perth	10.4	81.0	6.8	1.0	0.8
Thames Valley	12.4	78.2	5.7	3.0	0.8
Essex, Kent, and Lambton	12.9	72.9	11.5	2.1	0.7
North	11.8	79.4	6.8	1.1	0.9
Algoma, Cochrane, Manitoulin, and Sudbury	11.5	80.1	6.6	1.3	0.6
Northern Shores	11.6	81.8	4.7	1.2	0.7
Northwestern Ontario	12.3	76.1	9.2	0.9	1.6
Ontario	**12.9**	**76.6**	**8.0**	**1.5**	**1.0**

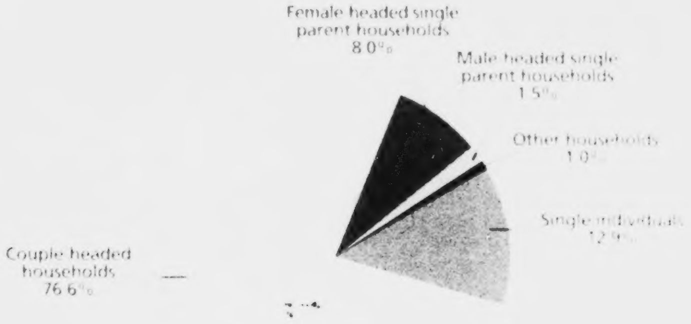
Data source: 1996/97 Ontario Health Survey

Exhibit 1-5. Ethnic Origin of Ontario Population by Sex, Region, and District Health Council Area (%)

Ministry of Health Planning Region District Health Council Area	Ethnic Origin — Women Canadian/ US	Northern/ Western European	Southern/ Eastern European	Asian	Other	Multi-ethnic	Ethnic Origin — Men Canadian/ US	Northern/ Western European	Southern/ Eastern European	Asian	Other	Multi-ethnic
East	37.6	49.1	3.1	3.5	3.0	3.8	38.7	48.5	4.1	4.3	2.5	2.0
Champlain	36.8	46.1	4.0	5.0	4.0	4.1	34.8	49.2	5.1	5.4	3.3	2.2
Southeastern Ontario	39.3	55.1	1.1	0.6	0.8	3.2	46.3	47.2	2.1	2.0	0.8	1.6
Central East	35.2	42.8	9.0	5.8	3.2	4.0	35.9	37.8	11.0	6.3	4.5	4.5
Durham, Haliburton, Kawartha, and Pine Ridge	39.9	46.6	5.3	2.1	2.8	3.4	39.4	45.0	5.2	2.2	3.6	4.7
Simcoe-York	31.4	39.7	12.0	8.8	3.6	4.5	33.2	32.3	15.4	9.4	5.3	4.4
Toronto	23.1	25.3	13.9	19.3	14.3	4.1	26.2	21.3	15.4	20.5	12.6	4.0
Central West	32.0	37.3	10.6	9.3	6.5	4.3	30.6	37.4	12.4	10.1	5.7	3.8
Halton-Peel	27.1	33.2	13.7	13.1	8.3	4.7	37.3	33.8	14.6	13.7	6.8	3.9
Waterloo Region-Wellington-Dufferin	42.1	45.7	4.2	1.6	3.0	3.5	37.0	44.3	8.2	3.2	3.7	3.7
Central South	35.7	39.8	13.1	2.5	3.7	5.2	42.3	38.1	10.9	2.2	3.6	3.0
Grand River	43.3	41.7	8.7	1.4	1.7	3.2	41.3	45.7	7.6	1.0	1.4	3.1
Hamilton-Wentworth	32.7	37.8	15.7	3.7	3.4	6.7	42.9	32.4	13.2	3.2	5.3	3.0
Niagara	34.9	41.1	12.5	1.9	5.0	4.6	42.1	41.5	9.6	1.6	2.5	2.8
South West	42.6	43.4	6.3	2.1	2.4	3.1	39.1	47.6	5.5	2.2	2.6	3.0
Grey, Bruce, Huron-Perth	45.0	50.2	1.8	0.1	0.7	2.3	39.0	55.9	2.2	0.5	0.7	1.9
Thames Valley	45.6	39.5	6.5	2.5	3.0	3.0	38.5	48.5	5.3	2.4	2.6	2.6
Essex, Kent, and Lambton	38.5	44.3	8.3	2.7	2.5	3.7	39.8	42.0	7.6	2.8	3.6	4.1
North	41.2	44.7	6.1	0.4	3.0	4.6	42.9	45.2	7.5	0.3	1.2	2.9
Algoma, Cochrane, Manitoulin, and Sudbury	36.0	50.3	5.7	0.3	4.5	3.2	37.1	50.9	7.5	0.4	1.5	2.5
Northern Shores	44.9	49.4	2.1	0.5	0.3	2.9	50.5	43.8	3.1	0.1	0.9	1.7
Northwestern Ontario	47.7	29.9	10.5	0.5	2.6	8.8	44.6	37.3	11.9	0.3	1.1	4.8
Ontario	**34.01**	**39.01**	**9.27**	**7.64**	**5.97**	**4.11**	**35.1**	**37.9**	**10.1**	**8.0**	**5.4**	**3.4**

Data source: 1996-97 Ontario Health Survey

Exhibit 1-6. **Population Distribution by Household Type in Ontario, 1996/97**



Data source: 1996/97 Ontario Health Survey

Exhibit 1-7. **Population Distribution by Household Type, Ontario, by Region and District Health Council Area (%)**

Ministry of Health Planning Region	**Household Type**				
District Health Council Area	Single Individuals	Couple-Headed Households	Female-Headed Single Parent Households	Male-Headed Single Parent Households	Other Households
East	14.8	73.7	8.5	2.0	1.1
Southeastern Ontario	13.9	74.8	9.3	1.0	1.0
Champlain	15.3	73.1	8.2	2.4	1.1
Central East	8.9	82.9	6.7	1.0	0.6
Durham, Haliburton, Kawartha, and Pine Ridge	9.9	80.5	8.1	1.2	0.4
Simcoe-York	8.1	84.8	5.6	0.9	0.7
Toronto	18.7	68.2	10.0	1.6	1.5
Central West	11.5	81.6	6.6	1.4	0.9
Halton-Peel	7.6	83.2	6.8	1.2	1.1
Waterloo Region-Wellington-Dufferin	13.3	78.4	6.2	1.6	0.6
Central South	9.5	77.0	8.7	1.3	0.7
Grand River	11.2	80.2	6.3	1.8	0.6
Hamilton-Wentworth	12.8	74.7	10.5	1.1	0.9
Niagara	12.3	78.1	7.8	1.4	0.4
South West	12.3	76.7	8.2	2.2	0.8
Grey, Bruce, Huron-Perth	10.4	81.0	6.8	1.0	0.8
Thames Valley	12.4	78.2	5.7	3.0	0.8
Essex, Kent, and Lambton	12.9	72.9	11.5	2.1	0.7
North	11.8	79.4	6.8	1.1	0.9
Algoma, Cochrane, Manitoulin, and Sudbury	11.5	80.1	6.6	1.3	0.6
Northern Shores	11.6	81.8	4.7	1.2	0.7
Northwestern Ontario	12.3	76.1	9.2	0.9	1.6
Ontario	**12.9**	**76.6**	**8.0**	**1.5**	**1.0**

Data source: 1996/97 Ontario Health Survey

INCOME

Exhibit 1-8 shows the average incomes of census families and single individuals (called non-family persons) by planning regions and DHC areas. Looking across family types, as might be expected, husband-wife families have the highest average incomes, at nearly $65,000, across all of Ontario, while the average for female lone-parent families is less than half that. Both male and female non-family persons have average incomes that are even lower, with males at just over $27,000 and females at $22,311. Looking at the different planning areas, Halton-Peel has the highest average incomes for all categories, with the exception of non-family females. In this category the highest average incomes are found in Toronto and Champlain. Average family incomes are lowest in the Northern Shores DHC area (formerly known as Muskoka-Nipissing-Parry Sound-Temiskaming), and for non-family females, in Algoma-Cochrane-Manitoulin and Sudbury.

Exhibit 1-8. Average Family Income by Family Type, Region, and District Health Council Area ($)

Ministry of Health Planning Region	**Average Income**					
District Health Council Area	All Census Families	Husband-Wife Families	Male Lone-Parent Families	Female Lone-Parent Families	Male Non-family Persons	Female Non-family Persons
East	$59,249	$63,599	$45,640	$30,171	$26,906	$23,218
Champlain	62,734	67,615	49,531	31,539	28,178	24,336
Southeastern Ontario	52,230	55,693	36,467	26,997	23,578	20,607
Central East	63,443	67,276	46,187	31,611	27,570	21,294
Durham, Haliburton, Kawartha, and Pine Ridge	59,233	63,016	44,500	30,171	27,501	21,191
Simcoe-York	66,928	70,738	47,810	32,982	27,639	21,390
Toronto	58,939	65,175	42,006	30,686	27,709	24,284
Central West	66,101	70,379	48,364	33,418	29,437	22,611
Halton-Peel	69,174	73,553	51,024	35,270	31,385	23,577
Waterloo Region-Wellington-Dufferin	60,157	64,215	43,137	29,963	26,523	21,109
Central South	55,064	59,315	41,727	27,846	25,091	19,978
Grand River	53,833	57,315	39,387	28,649	24,937	19,537
Hamilton-Wentworth	56,223	61,003	41,524	27,952	24,854	20,459
Niagara	54,418	58,527	43,163	27,333	25,482	19,578
South West	57,286	61,312	43,871	28,614	26,188	20,958
Grey, Bruce, Huron-Perth	52,158	54,732	37,655	28,280	24,161	20,350
Thames Valley	57,361	61,764	42,848	28,124	25,030	21,647
Essex, Kent, and Lambton	59,775	64,267	47,190	29,210	28,247	20,487
North	53,389	57,491	42,199	25,821	24,374	18,773
Algoma, Cochrane, Manitoulin, and Sudbury	53,944	58,289	43,848	25,301	24,235	18,210
Northern Shores	47,937	51,256	34,777	24,592	21,710	18,789
Northwestern Ontario	57,396	61,869	45,183	27,831	26,727	19,732
Ontario	**$59,830**	**$64,434**	**$44,315**	**$30,182**	**$27,089**	**$22,311**

Data source: 1996/97 Ontario Health Survey

POVERTY

Poverty is a major factor associated with health (Marmot and Wilkinson 1999). In Ontario, estimates from the 1996/97 OHS indicate that 13 percent of people are categorized as low income, and seven percent of people at some point in the prior month did not have enough food to eat (Exhibit 1-9). Toronto and the North region have the highest proportion of people with low income.

Exhibit 1-9. Poverty Indicators by Health Planning Region, District Health Council, and Sex, 1996/97 (%)

Ministry of Health Planning Region	**% Low Income**					**% Food Insecurity**		
District Health Council Area	All Ages			65 Years and Over		Men	Women	Total
	Men	Women	Total	Men	Women	All Ages	All Ages	All Ages
East	14.1	16.2	15.2	10.6	19.3	6.4	8.7	7.6
Champlain	13.1	15.9	14.5	9.3	19.5	6.2	8.4	7.3
Southeastern Ontario	16.0	16.9	16.4	12.6	19.1	6.9	9.4	8.1
Central East	8.3	11.3	9.8	7.5	13.9	6.4	9.3	7.9
Durham, Haliburton, Kawartha, and Pine Ridge	11.0	14.4	12.8	9.5	13.2	9.4	9.0	9.2
Simcoe-York	6.0	8.7	7.4	5.6	14.5	4.1	9.5	6.8
Toronto	16.1	16.6	16.4	9.3	13.3	5.7	8.0	6.9
Central West	7.7	9.2	8.4	7.6	13.4	7.5	4.9	6.1
Halton-Peel	6.4	8.2	7.4	4.6	10.8	6.6	4.3	5.4
Waterloo Region-Wellington-Dufferin	10.0	11.0	10.5	12.3	17.3	9.1	6.1	7.6
Central South	11.8	14.3	13.0	5.6	17.6	6.9	7.0	6.9
Grand River	12.2	12.5	12.4	6.7	19.7	4.2	7.9	6.2
Hamilton-Wentworth	13.8	12.4	13.2	5.7	15.2	6.4	6.5	6.4
Niagara	9.3	17.4	13.2	5.1	19.2	8.8	7.1	7.9
South West	15.4	14.6	15.0	6.2	16.2	6.6	5.5	6.0
Essex, Kent, and Lambton	16.0	17.4	16.7	5.6	16.7	8.4	6.4	7.4
Grey, Bruce, Huron-Perth	19.3	11.1	15.5	10.0	15.4	7.1	4.7	5.9
Thames Valley	12.9	13.5	13.2	4.4	16.0	4.6	5.0	4.8
North	12.9	21.2	17.0	11.3	16.9	6.8	9.3	8.1
Algoma, Cochrane, Manitoulin, and Sudbury	12.9	23.9	18.7	12.2	15.6	6.1	11.0	8.7
Northern Shores	8.7	19.8	13.8	12.0	19.0	4.8	6.2	5.5
Northwestern Ontario	16.9	17.6	17.2	9.1	16.8	9.8	8.9	9.4
Ontario	**12.3**	**14.3**	**13.3**	**8.3**	**15.5**	**6.5**	**7.4**	**7.0**

Data source: 1996/97 Ontario Health Survey

Overall, there are slightly more women, compared to men, living with a low income. This gender difference is more pronounced in the Northern planning region, with 21 percent of women living with a low income and nine percent with food insecurity.

Poverty among older women is of particular concern. Exhibit 1-9 also compares the proportion of men and women 65 and over in the low income group. In Ontario as a whole, poverty among senior women is nearly twice that of men in the same age group. There are a number of regions in Ontario where nearly one out of every five senior woman is in the low income category. One explanation is that women, with their longer life expectancy, frequently slip into poverty in their senior years after the death of their spouse and the subsequent reduction in income that often accompanies it.

INCOME

Exhibit 1-8 shows the average incomes of census families and single individuals (called non-family persons) by planning regions and DHC areas. Looking across family types, as might be expected, husband-wife families have the highest average incomes, at nearly $65,000, across all of Ontario, while the average for female lone-parent families is less than half that. Both male and female non-family persons have average incomes that are even lower, with males at just over $27,000 and females at $22,311. Looking at the different planning areas, Halton-Peel has the highest average incomes for all categories, with the exception of non-family females. In this category the highest average incomes are found in Toronto and Champlain. Average family incomes are lowest in the Northern Shores DHC area (formerly known as Muskoka-Nipissing-Parry Sound-Temiskaming), and for non-family females, in Algoma-Cochrane-Manitoulin and Sudbury.

Exhibit 1-8. Average Family Income by Family Type, Region, and District Health Council Area ($)

Ministry of Health Planning Region	**Average Income**					
District Health Council Area	All Census Families	Husband-Wife Families	Male Lone-Parent Families	Female Lone-Parent Families	Male Non-family Persons	Female Non-family Persons
East	$59,249	$63,599	$45,640	$30,171	$26,906	$23,218
Champlain	62,734	67,615	49,531	31,539	28,178	24,336
Southeastern Ontario	52,230	55,693	36,467	26,997	23,578	20,607
Central East	63,443	67,276	46,187	31,611	27,570	21,294
Durham, Haliburton, Kawartha, and Pine Ridge	59,233	63,016	44,500	30,171	27,501	21,191
Simcoe-York	66,928	70,738	47,810	32,982	27,639	21,390
Toronto	58,939	65,175	42,006	30,686	27,709	24,284
Central West	66,101	70,379	48,364	33,418	29,437	22,611
Halton-Peel	69,174	73,553	51,024	35,270	31,385	23,577
Waterloo Region-Wellington-Dufferin	60,157	64,215	43,137	29,963	26,523	21,109
Central South	55,064	59,315	41,727	27,846	25,091	19,978
Grand River	53,833	57,315	39,387	28,649	24,937	19,537
Hamilton-Wentworth	56,223	61,003	41,524	27,952	24,854	20,459
Niagara	54,418	58,527	43,163	27,333	25,482	19,578
South West	57,286	61,312	43,871	28,614	26,188	20,958
Grey, Bruce, Huron-Perth	52,158	54,732	37,655	28,280	24,161	20,350
Thames Valley	57,361	61,764	42,848	28,124	25,030	21,647
Essex, Kent, and Lambton	59,775	64,267	47,190	29,210	28,247	20,487
North	53,389	57,491	42,199	25,821	24,374	18,773
Algoma, Cochrane, Manitoulin, and Sudbury	53,944	58,289	43,848	25,301	24,235	18,210
Northern Shores	47,937	51,256	34,777	24,592	21,710	18,789
Northwestern Ontario	57,396	61,869	45,183	27,831	26,727	19,732
Ontario	**$59,830**	**$64,434**	**$44,315**	**$30,182**	**$27,089**	**$22,311**

Data source: 1996/97 Ontario Health Survey

POVERTY

Poverty is a major factor associated with health (Marmot and Wilkinson 1999). In Ontario, estimates from the 1996/97 OHS indicate that 13 percent of people are categorized as low income, and seven percent of people at some point in the prior month did not have enough food to eat (Exhibit 1-9). Toronto and the North region have the highest proportion of people with low income.

Exhibit 1-9. Poverty Indicators by Health Planning Region, District Health Council, and Sex, 1996/97 (%)

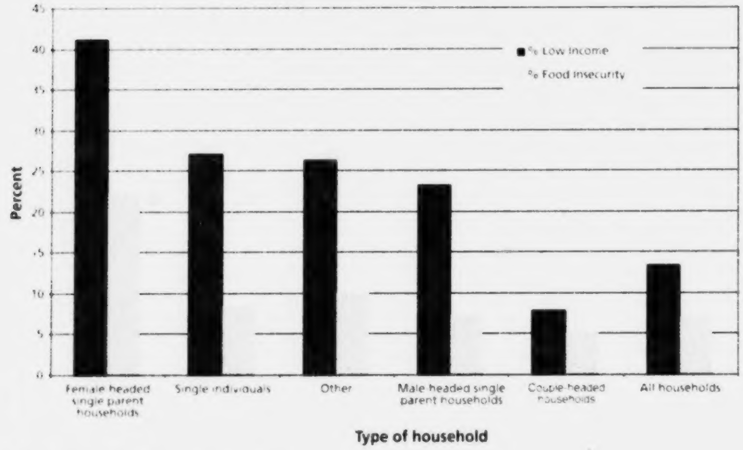
Ministry of Health Planning Region	**% Low Income**					**% Food Insecurity**		
District Health Council Area	All Ages			65 Years and Over		Men	Women	Total
	Men	Women	Total	Men	Women	All Ages	All Ages	All Ages
East	14.1	16.2	15.2	10.6	19.3	6.4	8.7	7.6
Champlain	13.1	15.9	14.5	9.3	19.5	6.2	8.4	7.3
Southeastern Ontario	16.0	16.9	16.4	12.6	19.1	6.9	9.4	8.1
Central East	8.3	11.3	9.8	7.5	13.9	6.4	9.3	7.9
Durham, Haliburton, Kawartha, and Pine Ridge	11.0	14.4	12.8	9.5	13.2	9.4	9.0	9.2
Simcoe-York	6.0	8.7	7.4	5.6	14.5	4.1	9.5	6.8
Toronto	16.1	16.6	16.4	9.3	13.3	5.7	8.0	6.9
Central West	7.7	9.2	8.4	7.6	13.4	7.5	4.9	6.1
Halton-Peel	6.4	8.2	7.4	4.6	10.8	6.6	4.3	5.4
Waterloo Region-Wellington-Dufferin	10.0	11.0	10.5	12.3	17.3	9.1	6.1	7.6
Central South	11.8	14.3	13.0	5.6	17.6	6.9	7.0	6.9
Grand River	12.2	12.5	12.4	6.7	19.7	4.2	7.9	6.2
Hamilton-Wentworth	13.8	12.4	13.2	5.7	15.2	6.4	6.5	6.4
Niagara	9.3	17.4	13.2	5.1	19.2	8.8	7.1	7.9
South West	15.4	14.6	15.0	6.2	16.2	6.6	5.5	6.0
Essex, Kent, and Lambton	16.0	17.4	16.7	5.6	16.7	8.4	6.4	7.4
Grey, Bruce, Huron-Perth	19.3	11.1	15.5	10.0	15.4	7.1	4.7	5.9
Thames Valley	12.9	13.5	13.2	4.4	16.0	4.6	5.0	4.8
North	12.9	21.2	17.0	11.3	16.9	6.8	9.3	8.1
Algoma, Cochrane, Manitoulin, and Sudbury	12.9	23.9	18.7	12.2	15.6	6.1	11.0	8.7
Northern Shores	8.7	19.8	13.8	12.0	19.0	4.8	6.2	5.5
Northwestern Ontario	16.9	17.6	17.2	9.1	16.8	9.8	8.9	9.4
Ontario	**12.3**	**14.3**	**13.3**	**8.3**	**15.5**	**6.5**	**7.4**	**7.0**

Data source: 1996/97 Ontario Health Survey

Overall, there are slightly more women, compared to men, living with a low income. This gender difference is more pronounced in the Northern planning region, with 21 percent of women living with a low income and nine percent with food insecurity.

Poverty among older women is of particular concern. Exhibit 1-9 also compares the proportion of men and women 65 and over in the low income group. In Ontario as a whole, poverty among senior women is nearly twice that of men in the same age group. There are a number of regions in Ontario where nearly one out of every five senior woman is in the low-income category. One explanation is that women, with their longer life expectancy, frequently slip into poverty in their senior years after the death of their spouse and the subsequent reduction in income that often accompanies it.

Exhibit 1-10. **Incidence (%) of Low Income and Food Insecurity by Household Type, Ontario, 1996/97**



Data source: 1996/97 Ontario Health Survey

Exhibit 1-10 shows that household type is also strongly associated with low income. Overall, 7.9 percent of households headed by couples would be classified as low income. This percentage increases fivefold (41.2%) for single-parent households headed by women, almost twice as much as similar households headed by men (23.2%).

EDUCATION

The highest level of education attained by men and women in the various geographic regions of Ontario is shown in Exhibit 1-11. After standardizing, the North has the highest proportion of the population with less than a high school diploma, and the lowest proportion with some type of postsecondary diploma or degree. Comparing the pattern of educational attainment for men and women, in two regions, the North and the Southwest, the patterns are very similar. In the other five regions, there tends to be a higher proportion of men with postsecondary certification compared with women, although the size of the gap varies from region to region.

Exhibit 1-11. Highest Level of Education Attained (%)*

Ministry of Health Planning Region	**Men**			**Women**		
District Health Council Area	Less than a High School Diploma	High School Diploma/Some Postsecondary	Postsecondary Diploma or Degree	Less than a High School Diploma	High School Diploma/Some Postsecondary	Postsecondary Diploma or Degree
East	21.2	32.7	44.5	22.4	36.7	38.3
Champlain	19.4	30.8	48.3	20.9	36.2	40.3
Southeastern Ontario	24.4	37.5	36.6	25.5	37.8	34.1
Central East	20.4	37.8	40.3	20.5	40.7	36.2
Durham, Haliburton, Kawartha, and Pine Ridge	21.7	40.1	36.6	23.1	42.2	32.2
Simcoe-York	19.3	35.8	43.4	18.7	39.5	39.3
Toronto	18.0	32.4	48.0	20.7	34.7	42.0
Central West	20.0	35.8	42.7	19.7	40.3	37.5
Halton-Peel	17.8	37.0	43.6	18.3	40.8	38.3
Waterloo Region-Wellington-Dufferin	23.9	33.7	40.7	22.6	39.0	35.8
Central South	23.4	40.1	35.0	25.0	39.4	33.0
Grand River	29.5	35.9	33.1	26.3	40.4	30.7
Hamilton-Wentworth	22.0	41.5	34.9	23.5	38.8	35.1
Niagara	21.9	40.7	35.8	25.5	39.7	32.2
South West	27.5	36.1	34.8	25.7	36.6	35.1
Grey, Bruce, Huron-Perth	29.1	36.6	32.7	26.3	38.7	32.5
Thames Valley	27.0	33.3	38.1	24.4	34.6	38.4
Essex, Kent, and Lambton	27.4	38.4	32.7	26.5	38.2	32.7
North	31.7	35.4	31.3	30.1	36.2	31.2
Algoma, Cochrane, Manitoulin, and Sudbury	32.9	33.8	31.7	32.0	34.2	31.3
Northern Shores	31.9	36.1	30.4	28.2	37.8	31.4
Northwestern Ontario	30.6	36.6	31.2	28.3	38.0	31.1
Ontario	**22.1**	**35.2**	**41.1**	**22.7**	**37.7**	**37.1**

Data sources: 1996/97 Ontario Health Survey; Statistics Canada

* *Those aged 25 and over only. Age-standardized to the 1991 Canadian population*

Exhibit 1-11. Highest Level of Education Attained (%)*

Ministry of Health Planning Region District Health Council Area	Men Less than a High School Diploma	Men High School Diploma/Some Postsecondary	Men Postsecondary Diploma or Degree	Women Less than a High School Diploma	Women High School Diploma/Some Postsecondary	Women Postsecondary Diploma or Degree
East	21.2	32.7	44.5	22.4	36.7	38.3
Champlain	19.4	30.8	48.3	20.9	36.2	40.3
Southeastern Ontario	24.4	37.5	36.6	25.5	37.8	34.1
Central East	20.4	37.8	40.3	20.5	40.7	36.2
Durham, Haliburton, Kawartha, and Pine Ridge	21.7	40.1	36.6	23.1	42.2	32.2
Simcoe-York	19.3	35.8	43.4	18.7	39.5	39.3
Toronto	18.0	32.4	48.0	20.7	34.7	42.0
Central West	20.0	35.8	42.7	19.7	40.3	37.5
Halton-Peel	17.8	37.0	43.6	18.3	40.8	38.3
Waterloo Region-Wellington-Dufferin	23.9	33.7	40.7	22.6	39.0	35.8
Central South	23.4	40.1	35.0	25.0	39.4	33.0
Grand River	29.5	35.9	33.1	26.3	40.4	30.7
Hamilton-Wentworth	22.0	41.5	34.9	23.5	38.8	35.1
Niagara	21.9	40.7	35.8	25.5	39.7	32.2
South West	27.5	36.1	34.8	25.7	36.6	35.1
Grey, Bruce, Huron-Perth	29.1	36.6	32.7	26.3	38.7	32.5
Thames Valley	27.0	33.3	38.1	24.4	34.6	38.4
Essex, Kent, and Lambton	27.4	38.4	32.7	26.5	38.2	32.7
North	31.7	35.4	31.3	30.1	36.2	31.2
Algoma, Cochrane, Manitoulin, and Sudbury	32.9	33.8	31.7	32.0	34.2	31.3
Northern Shores	31.9	36.1	30.4	28.2	37.8	31.4
Northwestern Ontario	30.6	36.6	31.2	28.3	38.0	31.1
Ontario	**22.1**	**35.2**	**41.1**	**22.7**	**37.7**	**37.1**

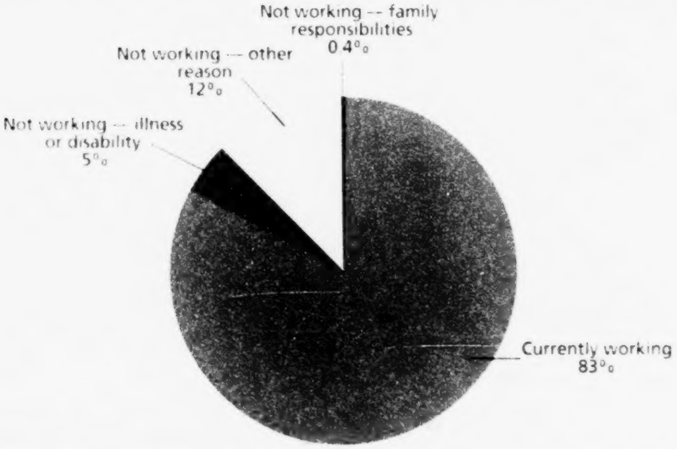
Data Sources: 1996-97 Ontario Health Survey; Statistics Canada

** Those aged 25 and over only. Age standardized to the 1991 Canadian population.*

WOMEN AND WORK

Women's participation in the paid workforce increased dramatically in the latter decades of the 20th century. In 1976, 42 percent of women 15 years and over had jobs. By 1994 this figure had risen to 52 percent (Statistics Canada, 1995). In Ontario, women's participation in the labour force rose from 55 percent in 1981 to 60 percent in 1996 (Statistics Canada, 1998). Men's participation rate, in contrast, has been falling, from 80 percent in 1981 to 73 percent in 1996. Consequently, women are making up an increasing proportion of the workforce. However, their participation differs from men in that they are much more likely to work part-time as opposed to full-time.

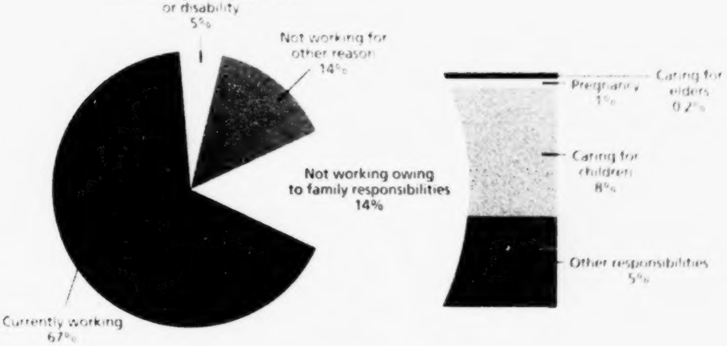
Exhibit 1-12. Working Status of Men Aged 25–64 in Ontario, 1996/97



Data source: 1996/97 Ontario Health Survey

The participation rate for both men and women over the age of 25 years in 1996 was fairly consistent throughout the province (Exhibit 1-17). The reasons for a lower participation rate in the paid workforce are varied, but one important contribution is family responsibilities. When there are family responsibilities, it is almost exclusively women who stop or limit their work outside the home (Exhibits 1-12, 1-13, 1-14).

Exhibit 1-13. Working Status of Women Aged 25–64 in Ontario, 1996/97



Data source: 1996/97 Ontario Health Survey

Exhibit 1-14. Main Activity of Adults Aged 24–65 in Ontario by Sex, Region, and District Health Council Area (%)

Ministry of Health Planning Region District Health Council Area	**Main Activity — Men** Currently Working	 Not Working — Family Responsibilities	 Not Working — Illness or Disability	 Not Working — Other Reason	**Main Activity — Women** Currently Working	 Not Working — Family Responsibilities	 Not Working — Illness or Disability	 Not Working — Other Reason
East	80.7	0.3	4.5	14.5	66.1	12.2	5.2	16.5
Southeastern Ontario	76.8	0.0	6.5	16.8	64.4	12.9	5.5	17.2
Champlain	82.4	0.5	3.6	13.5	66.9	11.9	5.0	16.2
Central East	84.7	0.3	4.1	11.0	66.5	15.5	5.1	12.9
Durham, Haliburton, Kawartha, and Pine Ridge	81.8	0.3	5.5	12.4	66.5	14.0	7.2	12.3
Simcoe-York	86.9	0.3	3.0	9.9	66.5	16.9	3.3	13.3
Toronto	81.9	0.5	3.9	13.7	67.2	13.2	4.4	15.2
Central West	87.2	0.3	3.4	9.1	70.6	13.3	3.5	12.7
Halton-Peel	86.5	0.3	3.7	9.5	71.1	13.4	3.0	12.5
Waterloo Region-Wellington-Dufferin	88.5	0.3	2.9	8.3	69.7	13.0	4.4	12.9
Central South	81.8	0.4	5.2	12.6	65.3	13.7	6.2	14.8
Grand River	84.7	0.6	4.4	10.3	67.3	13.1	8.3	11.4
Hamilton-Wentworth	82.1	0.0	4.6	12.3	68.0	12.0	4.8	15.3
Niagara	80.0	0.7	6.3	13.1	61.1	15.9	6.9	16.2
South West	83.4	0.3	5.9	10.4	66.8	13.2	6.3	13.7
Grey, Bruce, Huron-Perth	83.2	0.8	6.9	9.1	70.8	9.7	6.1	13.4
Thames Valley	86.3	0.0	4.2	9.6	67.2	13.3	6.4	13.1
Essex, Kent, and Lambton	80.7	0.4	7.2	11.7	64.5	14.9	6.2	14.4
North	75.6	0.7	8.4	15.3	61.1	15.8	7.5	15.6
Algoma, Cochrane, Manitoulin, and Sudbury	74.2	0.7	8.4	16.7	58.8	15.8	8.2	17.1
Northern Shores	74.0	0.8	10.2	15.1	60.7	12.8	7.9	18.5
Northwestern Ontario	79.5	0.7	6.9	13.0	65.8	18.6	5.7	10.0
Ontario	**82.78**	**0.38**	**4.67**	**12.17**	**66.8**	**13.7**	**5.1**	**14.4**

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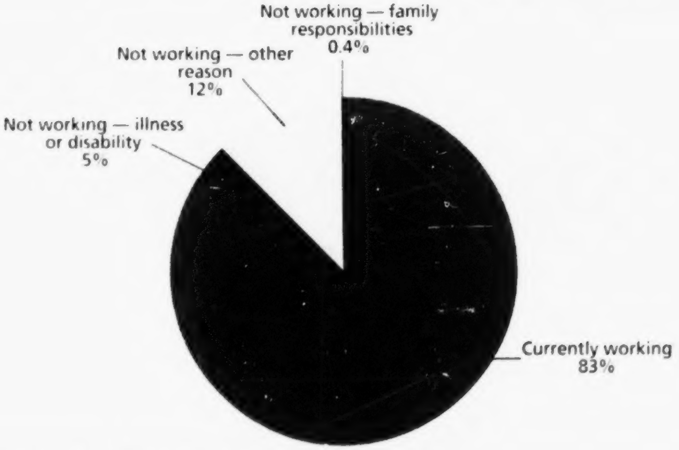
WOMEN AND WORK

Women's participation in the paid workforce increased dramatically in the latter decades of the 20th century. In 1976, 42 percent of women 15 years and over had jobs. By 1994 this figure had risen to 52 percent (Statistics Canada, 1995). In Ontario, women's participation in the labour force rose from 55 percent in 1981 to 60 percent in 1996 (Statistics Canada, 1998). Men's participation rate, in contrast, has been falling, from 80 percent in 1981 to 73 percent in 1996. Consequently, women are making up an increasing proportion of the workforce. However, their participation differs from men in that they are much more likely to work part-time as opposed to full-time.

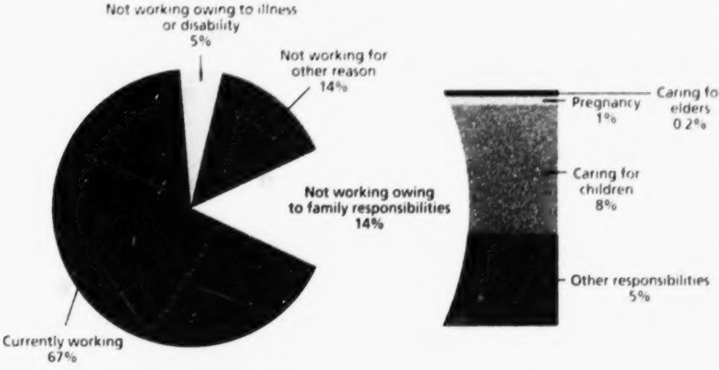
The participation rate for both men and women over the age of 25 years in 1996 was fairly consistent throughout the province (Exhibit 1-17). The reasons for a lower participation rate in the paid workforce are varied, but one important contribution is family responsibilities. When there are family responsibilities, it is almost exclusively women who stop or limit their work outside the home (Exhibits 1-12, 1-13, 1-14).

Exhibit 1-12. Working Status of Men Aged 25–64 in Ontario, 1996/97



Data source: 1996/97 Ontario Health Survey

Exhibit 1-13. Working Status of Women Aged 25–64 in Ontario, 1996/97



Data source: 1996/97 Ontario Health Survey

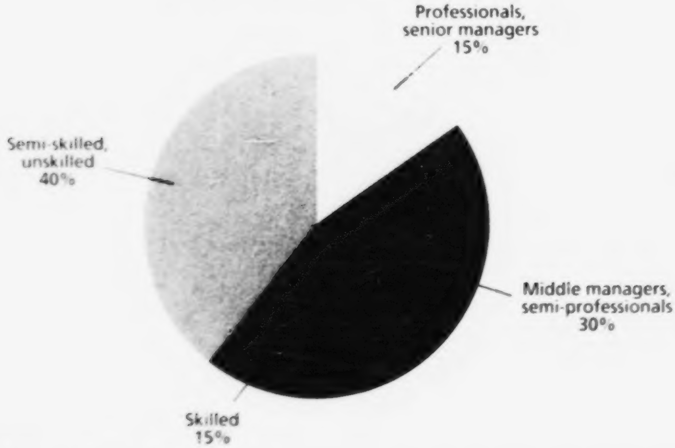
Exhibit 1-14. Main Activity of Adults Aged 24–65 in Ontario by Sex, Region, and District Health Council Area (%)

Ministry of Health Planning Region District Health Council Area	Main Activity — Men Currently Working	 Not Working — Family Responsibilities	 Not Working — Illness or Disability	 Not Working — Other Reason	Main Activity — Women Currently Working	 Not Working — Family Responsibilities	 Not Working — Illness or Disability	 Not Working — Other Reason
East	80.7	0.3	4.5	14.5	66.1	12.2	5.2	16.5
Southeastern Ontario	76.8	0.0	6.5	16.8	64.4	12.9	5.5	17.2
Champlain	82.4	0.5	3.6	13.5	66.9	11.9	5.0	16.2
Central East	84.7	0.3	4.1	11.0	66.5	15.6	5.1	12.9
Durham, Haliburton, Kawartha, and Pine Ridge	81.8	0.3	5.5	12.4	66.5	14.0	7.2	12.3
Simcoe-York	86.9	0.3	3.0	9.9	66.5	16.9	3.3	13.3
Toronto	81.9	0.5	3.9	13.7	67.2	13.2	4.4	15.2
Central West	87.2	0.3	3.4	9.1	70.6	13.3	3.5	12.7
Halton-Peel	86.5	0.3	3.7	9.5	71.1	13.4	3.0	12.5
Waterloo Region-Wellington-Dufferin	88.5	0.3	2.9	8.3	69.7	13.0	4.4	12.9
Central South	81.8	0.4	5.2	12.6	65.3	13.7	6.2	14.8
Grand River	84.7	0.6	4.4	10.3	67.3	13.1	8.3	11.4
Hamilton-Wentworth	82.1	0.0	4.6	12.3	68.0	12.0	4.8	15.3
Niagara	80.0	0.7	6.3	13.1	61.1	15.9	6.9	16.2
South West	83.4	0.3	5.9	10.4	66.8	13.2	6.3	13.7
Grey, Bruce, Huron-Perth	83.2	0.8	6.9	9.1	70.8	9.7	6.1	13.4
Thames Valley	86.3	0.0	4.2	9.6	67.2	13.3	6.4	13.1
Essex, Kent, and Lambton	80.7	0.4	7.2	11.7	64.5	14.9	6.2	14.4
North	75.6	0.7	8.4	15.3	61.1	15.8	7.5	15.6
Algoma, Cochrane, Manitoulin, and Sudbury	74.2	0.7	8.4	16.7	58.8	15.8	8.2	17.1
Northern Shores	74.0	0.8	10.2	15.1	60.7	12.8	7.9	18.5
Northwestern Ontario	79.5	0.7	6.9	13.0	65.8	18.6	5.7	10.0
Ontario	**82.78**	**0.38**	**4.67**	**12.17**	**66.8**	**13.7**	**5.1**	**14.4**

Data source: 1996/97 Ontario Health Survey

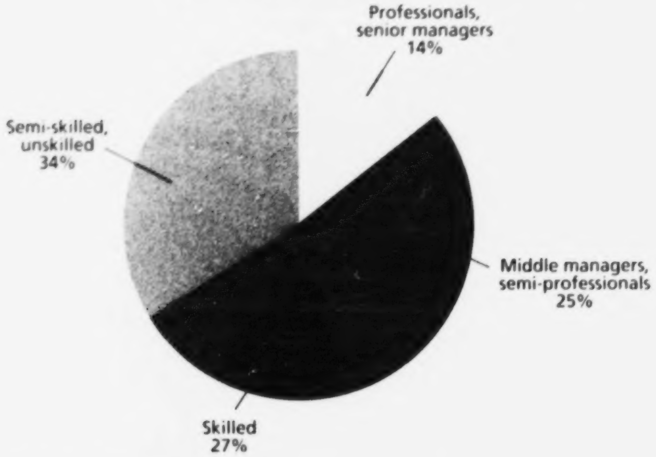
Exhibits 1-15, 1-16, and 1-17 show the type of work that is done by women and men. A similar proportion of women and men are professionals or senior managers. More men report being in occupations described as skilled, such as industrial trades and farming. Women are more likely to be middle managers, semi-professionals, or in semi- or unskilled occupations.

Exhibit 1-15. Occupations of Women Aged 25–64 in Ontario, 1996/97, by Pineo-Porter Classifications



Data source: 1996/97 Ontario Health Survey

Exhibit 1-16. Occupations of Men Aged 25–64 in Ontario, 1996/97, by Pineo-Porter Classifications



Data source: 1996/97 Ontario Health Survey

Exhibit 1-17. Occupations of Adults Aged 25–64 in Ontario by Sex, Region, and District Health Council Area (%) by Pinec-Porter Occupational Classification

Ministry of Health Planning Region	Occupational Group — Women				Occupational Group — Men				Unemployment Rate		Participation Rate	
District Health Council Area	Professionals, Senior Managers	Middle Managers, Semi-professionals	Skilled	Semi-skilled, Unskilled	Professionals, Senior Managers	Middle Managers, Semi-professionals	Skilled	Semi-skilled, Unskilled	Males 25+	Females 25+	Males 25+	Females 25+
East	15.1	35.8	13.0	36.0	16.9	30.7	20.6	31.8	7.3	7.5	74.5	59.6
Champlain	16.7	38.6	13.6	31.1	18.7	33.6	18.2	29.5	7.2	7.3	76.1	61.2
Southeastern Ontario	11.5	19.3	11.7	47.5	12.7	23.8	26.5	37.1	7.5	8.0	70.9	56.4
Central East	14.8	30.3	14.4	40.5	16.5	25.8	25.3	32.4	5.8	7.3	77.2	61.5
Durham, Haliburton, Kawartha, and Pine Ridge	15.8	19.3	14.5	40.4	14.0	21.8	26.4	37.8	6.2	7.8	75.3	59.7
Simcoe-York	14.0	31.2	14.3	40.5	18.4	28.7	24.5	28.4	5.4	6.9	78.8	62.9
Toronto	19.5	30.5	15.3	34.7	17.7	27.9	22.5	31.9	8.9	9.8	72.7	58.0
Central West	14.7	31.2	16.0	38.2	12.4	26.5	27.8	33.2	4.8	7.0	81.4	65.9
Halton-Peel	14.9	31.3	16.9	37.0	11.6	28.3	25.3	34.7	4.8	7.2	82.4	67.0
Waterloo Region-Wellington-Dufferin	14.3	31.0	14.1	40.6	13.9	23.1	32.6	30.4	4.8	6.5	79.5	63.7
Central South	11.7	28.4	13.2	46.7	12.3	17.7	31.2	38.9	6.9	8.1	71.3	55.4
Grand River	7.9	26.3	18.5	47.3	6.9	21.6	37.8	33.6	5.9	8.1	74.5	57.9
Hamilton-Wentworth	15.8	27.2	14.2	42.9	12.1	18.2	30.8	38.8	7.0	7.5	71.0	55.3
Niagara	8.8	31.2	8.9	51.1	15.6	14.8	27.8	41.8	7.3	8.7	70.0	54.3
South West	13.9	27.4	14.8	44.0	11.0	20.1	33.2	35.7	6.0	7.2	74.5	58.1
Grey, Bruce, Huron-Perth	12.0	23.0	19.5	45.5	9.5	20.0	38.8	31.8	4.7	6.4	73.8	58.1
Thames Valley	18.0	29.9	14.8	37.3	12.3	21.5	30.6	35.6	6.5	7.6	75.5	60.5
Essex, Kent, and Lambton	10.3	26.8	12.4	50.5	10.4	18.7	33.2	37.8	6.1	7.1	73.8	55.7
North	14.0	26.5	13.7	45.8	10.5	18.8	31.4	39.3	10.0	9.3	69.3	54.8
Algoma, Cochrane, Manitoulin, and Sudbury	13.4	26.6	15.4	44.7	11.0	18.9	30.0	40.1	9.8	9.8	68.6	53.9
Northern Shores	13.5	24.8	11.8	49.9	10.4	16.7	34.7	38.2	10.6	9.2	66.4	52.8
Northwestern Ontario	15.4	28.0	12.5	44.2	9.9	20.3	31.1	38.7	10.0	8.5	73.1	58.2
Ontario	**15.4**	**30.5**	**14.6**	**39.6**	**14.5**	**25.0**	**26.6**	**34.0**	**7.0**	**8.1**	**74.9**	**59.5**

Data source: 1996/97 Ontario Health Survey; Statistics Canada, 1996 Census

Exhibit 1-17. Occupations of Adults Aged 25–64 in Ontario by Sex, Region, and District Health Council Area (%) by Pineo-Porter Occupational Classification

Ministry of Health Planning Region	Occupational Group — Women				Occupational Group — Men				Unemployment Rate		Participation Rate	
District Health Council Area	Professionals, Senior Managers	Middle Managers, Semi-professionals	Skilled	Semi-skilled, Unskilled	Professionals, Senior Managers	Middle Managers, Semi-professionals	Skilled	Semi-skilled, Unskilled	Males 25+	Females 25+	Males 25+	Females 25+
East	15.1	35.8	13.0	36.0	16.9	30.7	20.6	31.8	7.3	7.5	74.5	59.6
Champlain	16.7	38.6	13.6	31.1	18.7	33.6	18.2	29.5	7.2	7.3	76.1	61.2
Southeastern Ontario	11.5	19.3	11.7	47.5	12.7	23.8	26.5	37.1	7.5	8.0	70.9	56.4
Central East	14.8	30.3	14.4	40.5	16.5	25.8	25.3	32.4	5.8	7.3	77.2	61.5
Durham, Haliburton, Kawartha, and Pine Ridge	15.8	19.3	14.5	40.4	14.0	21.8	26.4	37.8	6.2	7.8	75.3	59.7
Simcoe-York	14.0	31.2	14.3	40.5	18.4	28.7	24.5	28.4	5.4	6.9	78.8	62.9
Toronto	19.5	30.5	15.3	34.7	17.7	27.9	22.5	31.9	8.9	9.8	72.7	58.0
Central West	14.7	31.2	16.0	38.2	12.4	26.5	27.8	33.2	4.8	7.0	81.4	65.9
Halton-Peel	14.9	31.3	16.9	37.0	11.6	28.3	25.3	34.7	4.8	7.2	82.4	67.0
Waterloo Region-Wellington-Dufferin	14.3	31.0	14.1	40.6	13.9	23.1	32.6	30.4	4.8	6.5	79.5	63.7
Central South	11.7	28.4	13.2	46.7	12.3	17.7	31.2	38.9	6.9	8.1	71.3	55.4
Grand River	7.9	26.3	18.5	47.3	6.9	21.6	37.8	33.6	5.9	8.1	74.5	57.9
Hamilton-Wentworth	15.8	27.2	14.2	42.9	12.1	18.2	30.8	38.8	7.0	7.5	71.0	55.3
Niagara	8.8	31.2	8.9	51.1	15.6	14.8	27.8	41.8	7.3	8.7	70.0	54.3
South West	13.9	27.4	14.8	44.0	11.0	20.1	33.2	35.7	6.0	7.2	74.5	58.1
Grey, Bruce, Huron-Perth	12.0	23.0	19.5	45.5	9.5	20.0	38.8	31.8	4.7	6.4	73.8	58.1
Thames Valley	18.0	29.9	14.8	37.3	12.3	21.5	30.6	35.6	6.5	7.6	75.5	60.5
Essex, Kent, and Lambton	10.3	26.8	12.4	50.5	10.4	18.7	33.2	37.8	6.1	7.1	73.8	55.7
North	14.0	26.5	13.7	45.8	10.5	18.8	31.4	39.3	10.0	9.3	69.3	54.8
Algoma, Cochrane, Manitoulin, and Sudbury	13.4	26.6	15.4	44.7	11.0	18.9	30.0	40.1	9.8	9.8	68.6	53.9
Northern Shores	13.5	24.8	11.8	49.9	10.4	16.7	34.7	38.2	10.6	9.2	66.4	52.8
Northwestern Ontario	15.4	28.0	12.5	44.2	9.9	20.3	31.1	38.7	10.0	8.5	73.1	58.2
Ontario	**15.4**	**30.5**	**14.6**	**39.6**	**14.5**	**25.0**	**26.6**	**34.0**	**7.0**	**8.1**	**74.9**	**59.5**

CONCLUSIONS

The aging population will continue to influence the health and health-care use of Ontario women. During the 1990s there were more than twice as many women giving birth as dying. Over the next 30 years this pattern will change dramatically, with more older women in the last years of their lives.

The aging population will not only place more demands on the formal health-care system but likely influence how women spend their time. Women now make up almost half the paid workforce, but they spend more of their time than men attending to family responsibilities. In the future, there will be more elderly people and — if the present division of family responsibilities and support are any indication — the responsibilities for women will increase. Competing demands on their time are an important issue for all women, but are particularly worrisome for households headed by women who are single parents. The very high level of inadequate income in these households raises the concern that these women already have great difficulty ensuring that they have adequate resources to meet household needs.

Immigration is, and will continue to be, an important influence on the Ontario demographic situation. As fertility rates continue to decline, Ontario will become increasingly dependent on the immigration of young people, and especially young families, to maintain the current dependency ratio. Finally, changes in the patterns of immigration over time have led to an increasingly diverse Ontario, presenting ever new challenges to health-care providers and planners as they work to ensure that all Ontarians receive the services they need to live long, healthy, and productive lives.

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CHAPTER 2 – MORTALITY INDICATORS

DOUG MANUEL, DAR MALAVIARACHCHI,
LOUISE PICARD, AND VALERIE MANN

OVERVIEW

Over the past 25 years the decline in mortality rates has been slower for women compared to men. This reflects the rapid drop in cardiovascular disease and unintentional injuries in men and the increase in deaths from lung cancer in women. Similar trends in life style factors such as smoking between the sexes will likely result in further narrowing of the gap in life expectancy between men and women.

BACKGROUND/INTRODUCTION

Historically, indicators of mortality such as life expectancy and death rates provide a foundation for how we describe health. Estimated from death certificates, mortality indicators are one of the few reliable health measures that can be used to compare health in different provinces and countries over a long period of time. As a measure of poor health, death is seen as the tip of the iceberg — the most extreme outcome of health that follows the development of disease and the decline of body function. As such, reducing death is one of the major objectives of our health care system, recognizing that there is increasing interest not only about reducing death from disease but also in maintaining a high health-related quality of life (HRQOL) that acts as a resource for an active and fulfilling life (World Health Organization, 1948, 1986b).

METHODS

In this report we present three types of mortality statistics.

1) Life expectancy was calculated by assuming the death rate of a population does not change over their entire lifetime. Reported estimates were calculated by Statistics Canada for all health regions in 1991 Canadian population (Canadian Institute for Health Information, 2000).
2) Death rates for specific ages were calculated by dividing the number of deaths by the number of people in that age group. Death rates over time and across Public Health Units were derived by calculating "standardized" death rates. The age structure of a population affects the overall death rate. Older people have a higher death rate than younger people; therefore, populations with more older people will have a higher death rate than younger populations. To allow comparison across populations, the death rate was standardized to a fixed reference population. In this report we standardized to the 1991 Canadian population.
3) Potential years of life lost (PYLL) before age 75 years were used to emphasize the burden of disease resulting in premature death. PYLL were calculated by estimating the years of life lost between a reference age (75 years in this report) and the age of death of each person. These years of life lost were then aggregated for each disease. In this way, PYLL adjusts for difference in the age of death for different disease. For instance, death from unintentional injuries often happens earlier in life than death from heart disease. Therefore, there is a relatively great burden of unintentional injuries as measured by PYLL as compared to standardized death rates.

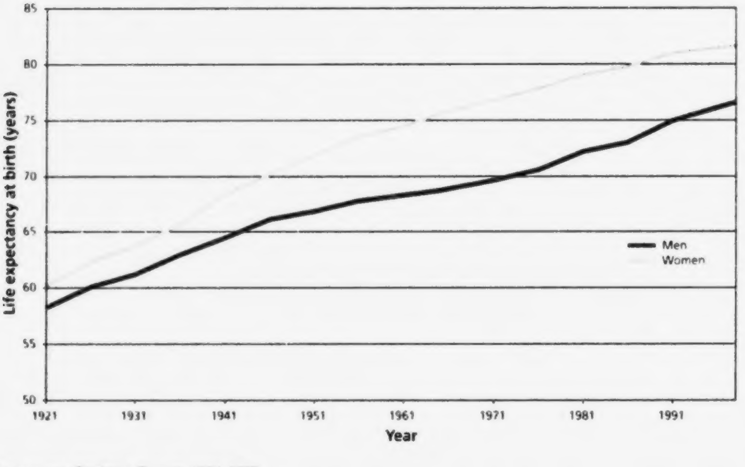
INTERPRETIVE CAUTIONS

Measures of mortality are estimated from death certificates that are completed by physicians and coroners and transferred to electronic records by the Office of the Registrar General and Statistics Canada. Although this process ensures that virtually every death is recorded, there are limitations in the accuracy of some types of information. For example, mortality measures assume that people die from one primary underlying condition. Physicians may have difficulty identifying the most important condition if there are several contributing diseases or if a person died in a manner that could be attributed to more than one cause. This problem is becoming more apparent as a greater proportion of people die in their elderly years, when a person typically suffers from a variety of chronic conditions.

Other errors in death certificates may arise from a reduction in the quality of vital statistics data since 1991. The 1996/97 mortality data does not include deaths that occurred outside of Ontario (0.3 percent of all deaths). This has a small effect on estimates for all areas except Northwestern Ontario, where up to five percent of deaths occur in Manitoba.

FINDINGS AND DISCUSSION

Exhibit 2-1. Life Expectancy at Birth, Women and Men, Ontario, 1921–1998



Data source: Statistics Canada, 1921–1998.

Exhibit 2-1 shows that Ontario women have made remarkable progress in reducing death throughout the last century. Presently, the life expectancy of Ontario women is among the highest in the world (Manuel & Schultz, 2001). At the beginning of the 20th century the life expectancy of Ontario women was almost equal to that of men (Dominion Bureau of Statistics, 1939). During the early part of the century, increases in life expectancy were attributed to a decrease in mortality in infants and young women (Peron & Strohmenger, 1992). Over the next 50 years, women's life expectancy continued to increase faster than men's due to an earlier and larger reduction in acute causes of death such as infectious diseases, injury, and heart disease. Death due to childbirth, which was previously not uncommon, has dropped by over 95 percent over the last century and is now rare — there are now approximately ten maternal deaths per year for the entire province.

More recently, an impressive decrease in the mortality rate for older women has resulted in a continued increase in life expectancy equal to about a one and one-half month increase in life expectancy at birth for every additional calendar year. By 1976, the life expectancy difference between men and women was greatest at 7.3 years. By 1998, the life expectancy difference between men and women had narrowed to five years and was decreasing at a rate of about one year of life expectancy every decade.

Exhibit 2-2. Mortality Indicators by Age and Sex, Ontario, 1995–1997

	Life Expectancy* (years)		All-Cause Mortality (deaths per 100,000/yr)		Cancer (deaths per 100,000/yr)		Cardiovascular Disease (deaths per 100,000/yr)		MVA (deaths per 100,000/yr)		Suicide (deaths per 100,000/yr)		Injury and Poisoning (deaths per 100,000/yr)	
Age	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
<19	81.4	76.1	42	56	4	3	1	1	4	7	1	3	8	15
20–44	62	57	58	122	18	22	6	15	5	14	5	18	15	50
45–64	37.7	33.2	394	644	22	24	76	202	5	10	6	19	19	47
65+	19.9	16.2	4054	5114	1441	913	1772	2072	10	17	5	20	113	133
All ages			536	847	155	233	200	312	5	12	4	14	23	51

Data source Office of the Registrer General and Statistics Canada

** Life expectancy estimates are for ages 0, 20, 45, and 65 years for 1996 97*

Mortality rates for all ages are standardized to the Canadian population, 1991

Exhibit 2-2. Mortality Indicators by Age and Sex, Ontario, 1995–1997

	Life Expectancy* (years)		All-Cause Mortality (deaths per 100,000/yr)		Cancer (deaths per 100 000/yr)		Cardiovascular Disease (deaths per 100,000/yr)		MVA (deaths per 100,000/yr)		Suicide (deaths per 100,000/yr)		Injury and Poisoning (deaths per 100,000/yr)	
Age	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
<19	81.4	76.1	42	56	4	3	1	1	4	7	1	3	8	15
20–44	62	57	58	122	18	22	6	15	5	14	5	18	15	50
45–64	37.7	33.2	394	644	22	24	76	202	5	10	6	19	19	47
65+	19.9	16.2	4054	5114	1441	913	1772	2072	10	17	5	20	113	133
All ages			536	847	155	233	200	312	5	12	4	14	23	51

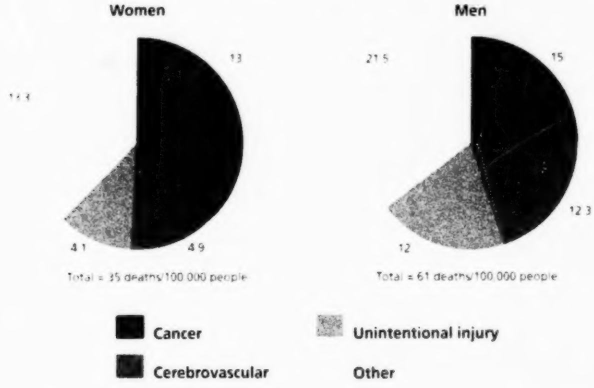
Data source: Office of the Registrar General and Statistics Canada

** Life expectancy estimates are for ages 0, 20, 45, and 65 years for 1996/97*

Mortality rates for all ages are standardized to the Canadian population, 1991

By examining the most recent data for 1995–97, it can be shown that compared to men, women had the lowest mortality during mid-life (Exhibit 2-2). In fact, the mortality rate for women age 20 to 44 years was only half of that for men (58 deaths per 100,000 women compared to 122 deaths per 100,000 men per year). Fewer deaths in women from injury, poisoning, and suicide was the greatest contribution to the differences in mortality at this age group, although there was a lower mortality rate in women for almost all causes of death. Based on these mortality rates, an Ontario woman has a 90 percent chance of surviving to age 65 years, compared to an 83 percent chance for men (Manuel & Schultz, 2001). Exhibit 2-3 shows that women's potential years of life lost before age 75 is over 40 percent lower than that for men. The success in reducing premature death and the increasing age when women die has been accompanied by a shift from acute causes of death, such as injury and infectious diseases, towards chronic conditions, such as heart disease and cancer. At age 65 years and older, mortality from all causes was lower for women than men but the difference was much less than younger ages. Of particular note, however, the death rate for cancer at older ages (65 years of age and older) was higher for women than that for men (1441 deaths per 100,000 women compared to 913 deaths per 100,000 men per year).

Exhibit 2-3. Potential Years of Life Lost before Age 75 Years, Women and Men, Ontario, 1997 (Deaths/100,000 people)



Data source: Statistics Canada and the Office of the Register General
Standardized to 1991 Canadian population.

One concern is that good health, represented by longer life expectancy, has not been shared equally across the province. Life expectancy is highest in urban and surrounding suburban areas and lowest in the north and rural areas. Exhibits 2-4 and 2-5 show that for women, the difference in life expectancy was 4.6 years between the highest and lowest Public Health Unit (PHU). However, the life expectancy difference between PHUs was even higher for males (7.9 years). There is some evidence that regional differences in life expectancy have been increasing over the past decade, after narrowing for the previous decade (Manuel & Schultz, 2001). About half of the difference in life expectancy between public health units can be attributed to the differences in the rates of cancer, heart disease, and unintentional injuries (Exhibit 2-4). In turn, difference in these diseases can be attributed to differences in "determinants of health" such as social and environment conditions, health behaviours, health care, and genetic factors (Health Canada, 1974). Of particular note, areas with the lowest life expectancy often have more people who live in poverty (see Chapter 1 on sociodemographics), have lower education, and exhibit more lifestyle risks such as smoking and obesity (see Chapter 18 on self-reported health practices).

Exhibit 2-4. Moratlity Indicators by Public Health Unit, Women and Men, 1997 (Deaths per 100,000)

	Life Expectancy*		All-Cause Morality		Cancer (ICD-9: 140-239)		Cardiovascular Disease (ICD-9: 390-459)		Unintentional Injury (ICD 800-999)		Neonatal Mortality* (ICD9 630 -676)	
Public Health Unit	Women (years)	Men (years)	Women	Men	Women	Men	Women	Men	Women	Men	Women (Deaths/1,000 live births)	Men
Toronto Region												
Toronto	82.2	76.3	482	757	136	210	162	250	22	42	3.9	5.4
Central East Region												
Durham	80.7	76.0	554	856	166	238	186	307	22	46	3.6	4.0
Haliburton, Kawartha, Pine Ridge	80.6	75.8	526	833	159	229	187	308	22	55	3.0	–
Peel	82.1	77.7	493	716	142	203	168	232	22	40	3.7	4.3
Peterborough	80.8	76.0	545	815	142	243	188	271	21	50	–	–
Simcoe	80.8	75.4	556	866	153	262	211	329	22	51	2.9	4.1
York	82.4	78.7	455	662	126	182	158	233	16	32	3.0	3.2
Central West Region												
Halton	82.5	77.8	447	729	143	225	164	268	22	49	3.2	2.9
Waterloo	81.7	75.9	508	814	135	220	201	312	21	46	2.8	5.1
Wellington-Dufferin	81.2	76.5	554	819	135	215	208	304	26	52	4.4	3.7
Central South Region												
Brant	80.4	74.8	579	930	161	257	226	332	26	62	2.7	3.0
Haldimand-Norfolk	80.4	75.2	580	882	156	227	247	386	26	67	5.4	–
Hamilton-Wentworth	80.6	75.4	565	872	160	246	188	310	25	50	4.0	5.0
Niagara	80.8	75.7	549	867	161	240	214	335	23	50	3.2	4.4
Eastern Region												
Eastern Ontario	80.1	74.5	603	909	179	230	221	365	23	60	4.1	4.6
Hastings & Prince Edward	80.5	74.4	592	944	148	246	245	357	26	61	3.2	5.3
Kingston,Frontenac, & Lennox/Addington	80.9	75.3	580	926	164	241	206	327	29	56	4.0	5.8
Leeds,Grenville-Lanark	80.2	74.2	574	960	150	246	199	353	32	60	–	6.1
Ottawa-Carleton	81.8	77.2	498	697	147	196	180	247	19	44	3.6	4.5
Renfrew	81.0	75.1	528	889	138	269	207	325	27	63		4.4
North Region												
Algoma	79.8	74.1	580	895	145	242	216	332	22	63	4.0	3.3
Muskoka-Parry Sound	80.6	73.9	538	934	131	243	208	376	32	78	5.1	7.6
North Bay	79.5	73.8	625	1010	166	295	218	370	38	73	–	4.0
Northwestern	77.9	70.8	634	923	161	217	164	266	65	156	3.5	2.9
Porcupine	79.7	73.3	585	1122	147	271	195	420	30	91		4.0
Sudbury	79.4	73.9	617	957	171	224	224	340	32	87	4.6	4.4
Thunder Bay	79.3	74.2	586	959	156	240	229	376	30	75	6.4	6.4
Timiskaming	78.8	73.0	658	1051	216	233	217	382	37	96		

Exhibit 2-4. Moratlity Indicators by Public Health Unit, Women and Men, 1997 (Deaths per 100,000)

	Life Expectancy*		All-Cause Morality		Cancer (ICD-9: 140-239)		Cardiovascular Disease (ICD-9 390-459)		Unintentional Injury (ICD 800-999)		Neonatal Mortality* (ICD9 630 -676)	
Public Health Unit	Women (years)	Men (years)	Women	Men	Women	Men	Women	Men	Women	Men	Women (Deaths/1,000 live births)	Men
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Hamilton-Wentworth	80.6	75.4	565	872	160	246	188	310	25	50	4.0	5.0
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Eastern Region												
Eastern Ontario	80.1	74.5	603	909	179	230	221	365	23	60	4.1	4.6
Hastings & Prince Edward	80.5	74.4	592	944	148	246	245	357	26	61	3.2	5.3
Kingston, Frontenac, & Lennox Addington	80.9	75.3	580	926	164	241	206	327	29	56	4.0	5.8
Leeds Grenville Lanark	80.2	74.2	574	960	150	246	199	353	32	60		6.1
Ottawa-Carleton	81.8	77.2	498	697	147	196	180	247	19	44	3.6	4.5
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Muskoka Parry Sound	80.6	73.9	538	934	131	243	208	336	32	78	5.1	7.6
North Bay	79.5	73.8	625	1010	166	295	218	370	38	73		4.0
Northwestern	77.9	70.8	634	923	161	217	164	266	65	156	3.5	2.9
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Timiskaming	78.6	73.0	658	1051	216	233	217	382	37	96		

Exhibit 2-4. Moratlity Indicators by Public Health Unit, Women and Men, 1997 (Deaths per 100,000) *Continued*

Public Health Unit	Life Expectancy*		All-Cause Morality		Cancer (ICD-9 140-239)		Cardiovascular Disease (ICD-9 390-459)		Unintentional Injury (ICD 800-999)		Neonatal Mortality* (ICD9 630-676)	
	Women (years)	Men (years)	Women	Men	Women	Men	Women	Men	Women	Men	Women (Deaths 1,000 live births)	Men
South West Region												
Bruce-Grey-Owen Sound	80.3	75.4	585	923	154	225	205	345	28	70	3.9	4.2
Elgin-St. Thomas	80.0	74.1	594	981	166	178	211	450	30	71	7.1	4.3
Huron	81.5	75.6	486	867	149	227	194	347	24	65		
Kent-Chatham	79.6	73.6	601	1007	147	276	268	425	21	66	4.8	3.4
Middlesex-London	81.4	75.4	544	897	151	269	180	290	24	55	3.1	3.7
Oxford	80.5	75.6	573	909	145	231	227	353	31	55	4.9	4.4
Perth	81.7	75.8	483	843	136	217	188	341	22	57		
Sarnia-Lambton	81.2	75.4	521	868	156	235	203	390	19	53	3.4	
Windsor-Essex	80.7	74.9	561	886	155	254	232	359	24	54	3.8	3.5
Ontario	**81.3**	**75.9**	**527**	**824**	**147**	**226**	**190**	**298**	**23**	**51**	**3.6**	**4.4**

Data source: Office of the Register General and Statistics Canada

**1995-1997*

Mortality rates are standardized to the Canadian population 1991

Exhibit 2-4. Moratlity Indicators by Public Health Unit, Women and Men, 1997 (Deaths per 100,000) ***Continued***

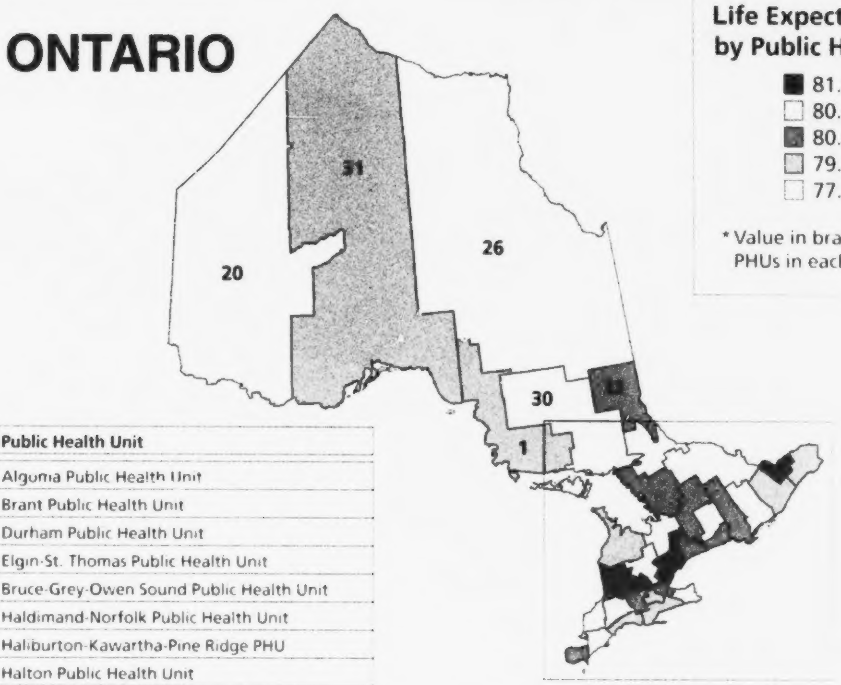
	Life Expectancy*		All-Cause Morality		Cancer (ICD-9: 140-239)		Cardiovascular Disease (ICD-9: 390-459)		Unintentional Injury (ICD 800-999)		Neonatal Mortality* (ICD9 630 -676)	
Public Health Unit	Women (years)	Men (years)	Women	Men	Women	Men	Women	Men	Women	Men	Women (Deaths/1,000 live births)	Men
South West Region												
Bruce-Grey-Owen Sound	80.3	75.4	585	923	154	225	205	345	28	70	3.9	4.2
Elgin-St. Thomas	80.0	74.1	594	981	166	178	211	450	30	71	7.1	4.3
Huron	81.5	75.6	486	867	149	227	194	347	24	65	–	–
Kent-Chatham	79.6	73.6	601	1007	147	276	268	425	21	66	4.8	3.4
Middlesex-London	81.4	75.4	544	897	151	269	180	290	24	55	3.1	3.7
Oxford	80.5	75.6	573	909	145	231	227	353	31	55	4.9	4.4
Perth	81.7	75.8	483	843	136	217	188	341	22	57	–	–
Sarnia-Lambton	81.2	75.4	521	868	156	235	203	390	19	53	3.4	–
Windsor-Essex	80.7	74.9	561	886	155	254	232	359	24	54	3.8	3.5
Ontario	**81.3**	**75.9**	**527**	**824**	**147**	**226**	**190**	**298**	**23**	**51**	**3.6**	**4.4**

Data source: Office of the Register General and Statistics Canada.

**1995–1997.*

Mortality rates are standardized to the Canadian population, 1991.

Exhibit 2-5. Life Expectancy for Women Across Public Health Units in Ontario, 1995–97

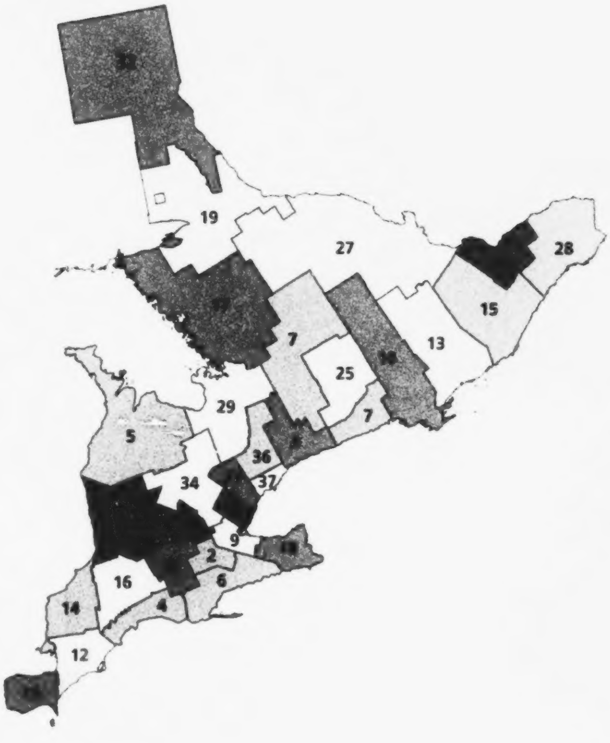


Life Expectancy for Women by Public Health Unit (PHU)

- ■ 81.5 to 82.5 (8)*
- ☐ 80.8 to 81.5 (8)
- ▩ 80.5 to 80.8 (7)
- ▨ 79.8 to 80.5 (7)
- ☐ 77.9 to 79.8 (7)

* Value in brackets is the number of PHUs in each category.

Label	Public Health Unit
1	Algoma Public Health Unit
2	Brant Public Health Unit
3	Durham Public Health Unit
4	Elgin-St. Thomas Public Health Unit
5	Bruce-Grey-Owen Sound Public Health Unit
6	Haldimand-Norfolk Public Health Unit
7	Haliburton-Kawartha-Pine Ridge PHU
8	Halton Public Health Unit
9	Hamilton-Wentworth Public Health Unit
10	Hastings and Prince Edward Public Health Unit
11	Huron Public Health Unit
12	Kent-Chatham Public Health Unit
13	Kingston-Frontenac-Lennox and Addington PHU
14	Lambton Public Health Unit
15	Leeds-Grenville-Lanark Public Health Unit
16	Middlesex-London Public Health Unit
17	Muskoka-Parry Sound Public Health Unit
18	Niagara Public Health Unit
19	North Bay Public Health Unit
20	Northwestern Public Health Unit
21	Ottawa Carleton Public Health Unit
22	Oxford Public Health Unit
23	Peel Public Health Unit
24	Perth Public Health Unit
25	Peterborough Public Health Unit
26	Porcupine Public Health Unit
27	Renfrew Public Health Unit
28	Eastern Ontario Public Health Unit
29	Simcoe Public Health Unit
30	Sudbury Public Health Unit
31	Thunder Bay Public Health Unit
32	Timiskaming Public Health Unit
33	Waterloo Public Health Unit
34	Wellington-Dufferin-Guelph Public Health Unit
35	Windsor-Essex Public Health Unit
36	York Public Health Unit
37	City of Toronto Public Health Unit



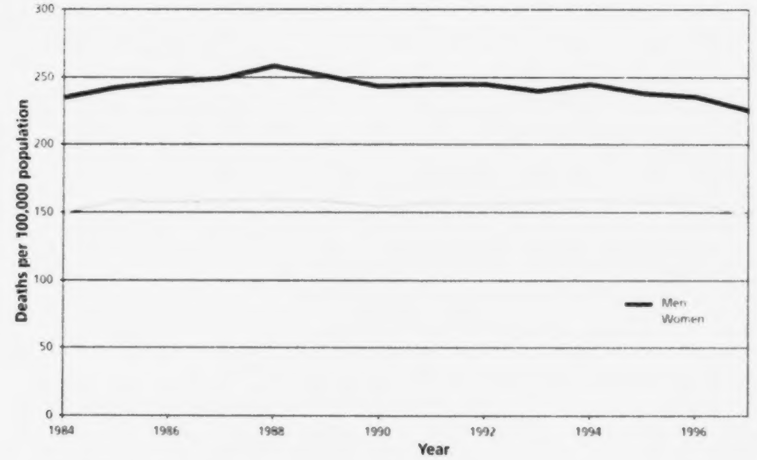
Data source: Statistics Canada, 1995–1997

It is also possible to examine the life expectancy of special populations. For instance, the life expectancy of immigrants is greater than that of the Canadian-born population for a variety of reasons, including the effect of selectively permitting healthy people to immigrate (Chen, Ng, & Wilkins, 1996). Since most people immigrate to urban settings (see Chapter 18 on self-reported health practices), this contributes to high life expectancy in these areas. Conversely, Canadian Aboriginal people have a life expectancy much lower than the Canadian average (Advisory Committee on Population Health, 1996). Since there is a relatively high proportion of Aboriginal people in northern areas, the health of these people will influence the population-based estimates for the entire Northern region.

CANCER

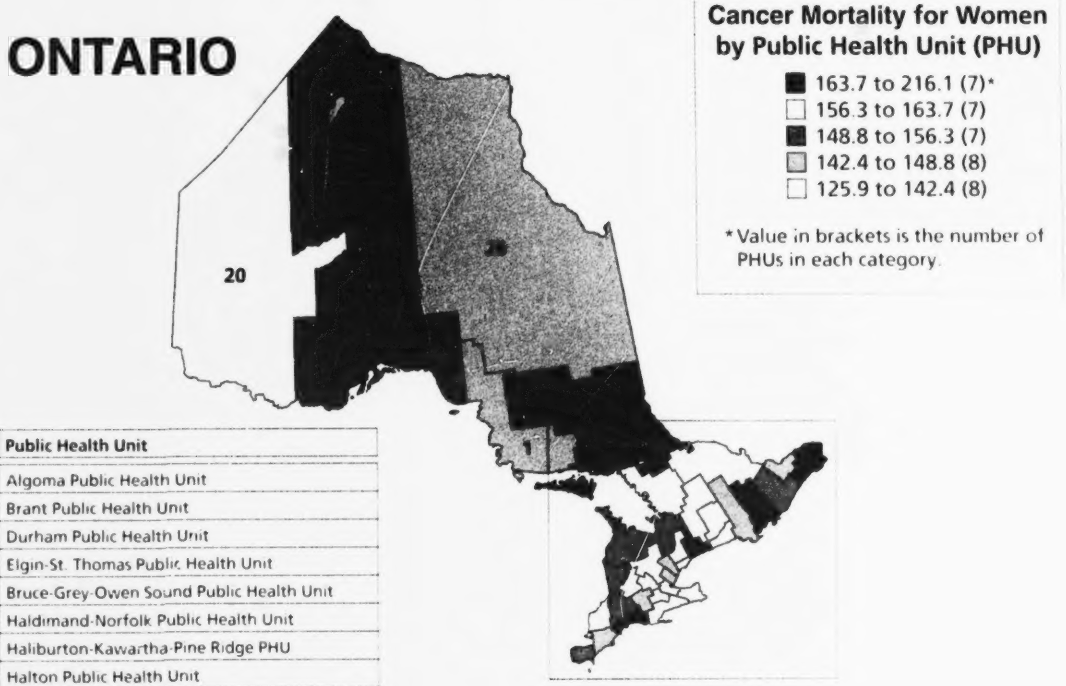
Exhibits 2-6 and 2-7 show that the mortality rate of all cancers for women has remained quite stable over the past 20 years, averaging between 150 and 160 deaths per 100,000 women per year. While this rate is considerably lower than the death rate for men — about 35 percent lower — the drop in lung cancer deaths in men, along the with the increase in lung cancer in women has resulted in a narrowing in cancer rates between the sexes (Exhibit 2-8). In 1995, breast cancer was surpassed by lung cancer in terms of the leading cause of cancer deaths in Ontario. However, one difference between breast and lung cancer is the large burden of breast cancer deaths in women between the age 50 and 70 years. As a result there are more potential years of life lost for breast cancer (19,000 PYLL before age 75 years) compared to lung cancer (14,000 PYLL). This means that although the cancer death *rate* for women is much lower than that for men, the *PYLL* for cancer is almost the same for both sexes (Exhibit 2-3).

Exhibit 2-6. Cancer Deaths, Ontario, Men and Women, 1984–97



Data source: Office of the Register General and Statistics Canada
Standardized to 1991 Canadian population.

Exhibit 2-7. Cancer Mortality Rates per 100,000 Women by Public Health Unit in Ontario, 1995–97

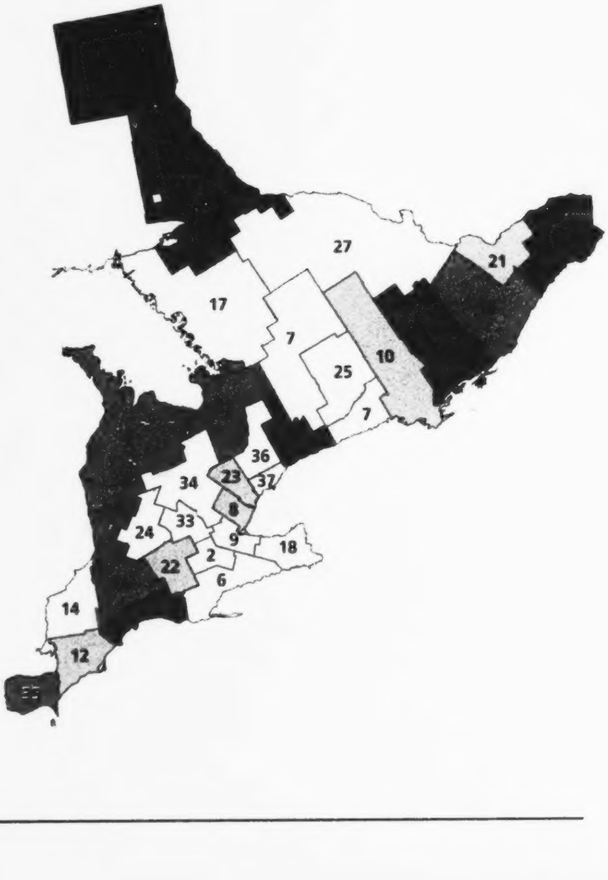


Cancer Mortality for Women by Public Health Unit (PHU)

- ■ 163.7 to 216.1 (7)*
- ☐ 156.3 to 163.7 (7)
- ■ 148.8 to 156.3 (7)
- ▨ 142.4 to 148.8 (8)
- ☐ 125.9 to 142.4 (8)

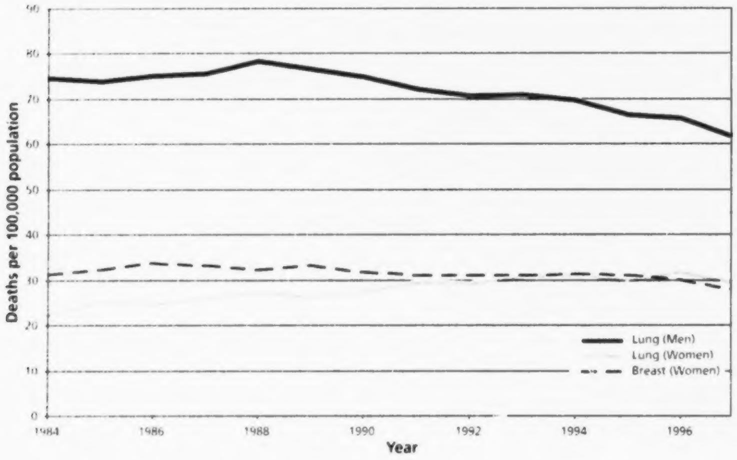
*Value in brackets is the number of PHUs in each category.

Label	Public Health Unit
1	Algoma Public Health Unit
2	Brant Public Health Unit
3	Durham Public Health Unit
4	Elgin-St. Thomas Public Health Unit
5	Bruce-Grey-Owen Sound Public Health Unit
6	Haldimand-Norfolk Public Health Unit
7	Haliburton-Kawartha-Pine Ridge PHU
8	Halton Public Health Unit
9	Hamilton-Wentworth Public Health Unit
10	Hastings and Prince Edward Public Health Unit
11	Huron Public Health Unit
12	Kent-Chatham Public Health Unit
13	Kingston-Frontenac-Lennox and Addington PHU
14	Lambton Public Health Unit
15	Leeds-Grenville-Lanark Public Health Unit
16	Middlesex-London Public Health Unit
17	Muskoka-Parry Sound Public Health Unit
18	Niagara Public Health Unit
19	North Bay Public Health Unit
20	Northwestern Public Health Unit
21	Ottawa Carleton Public Health Unit
22	Oxford Public Health Unit
23	Peel Public Health Unit
24	Perth Public Health Unit
25	Peterborough Public Health Unit
26	Porcupine Public Health Unit
27	Renfrew Public Health Unit
28	Eastern Ontario Public Health Unit
29	Simcoe Public Health Unit
30	Sudbury Public Health Unit
31	Thunder Bay Public Health Unit
32	Timiskaming Public Health Unit
33	Waterloo Public Health Unit
34	Wellington-Dufferin-Guelph Public Health Unit
35	Windsor-Essex Public Health Unit
36	York Public Health Unit
37	City of Toronto Public Health Unit



Data source: Statistics Canada, 1995–1997.

Exhibit 2-8. Lung and Breast Cancer Deaths, Ontario, Women and Men, 1984–97



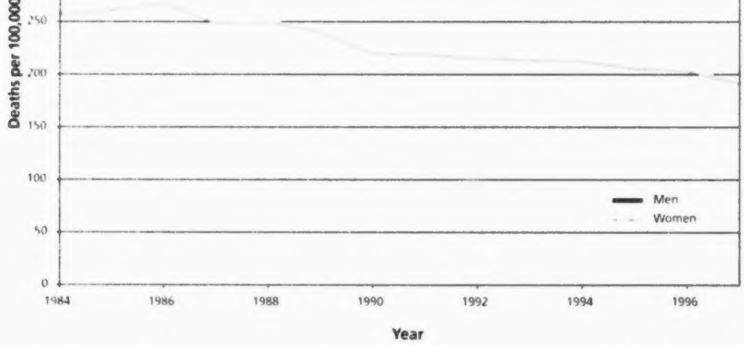
Data source Office of the Register General and Statistics Canada
Standardized to 1991 Canadian population

To see the future of cancer we need look no further than smoking. During much of the last century, men smoked much more than women and therefore there were more smoking related deaths among males. Among young Canadians today, there is no difference in smoking between the sexes (see Chapter 20 on smoking). This means that there will be a further narrowing in the difference in lung cancer and all cancer deaths between women and men. The increasing number of lung cancer deaths in Ontario women will also slow the increase in women's life expectancy.

CARDIOVASCULAR DISEASE

Cardiovascular disease (heart disease and stroke) is the leading cause of death for Ontario women. The death rate has continued to decline over time to the present rate of 200 deaths per 100,000 women each year, but it still accounts for over one third of all deaths (Exhibits 2-9 and 2-10). The death rate for women is considerably lower than the death rate for men (312 deaths per 100,000 people per year). This difference is particularly noteworthy at younger ages with an over 60 percent lower death rate for women ages 45 to 64 years compared to men (Exhibit 2-2).

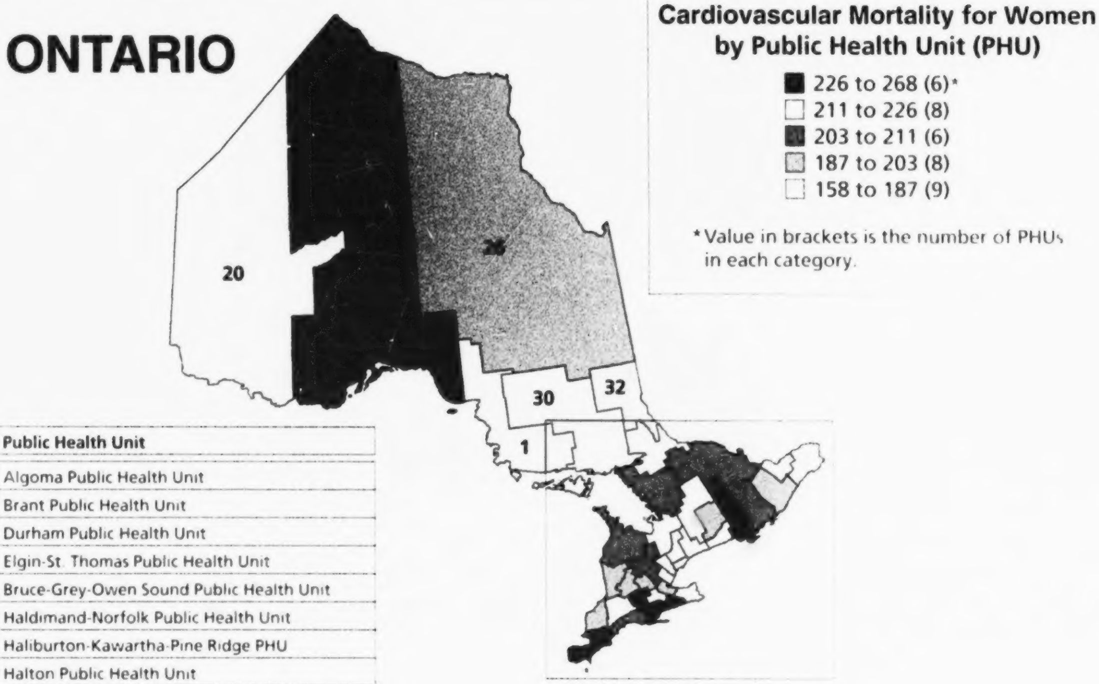
Exhibit 2-9. Cardiovascular Disease Deaths, Ontario, Women and Men, 1984–97

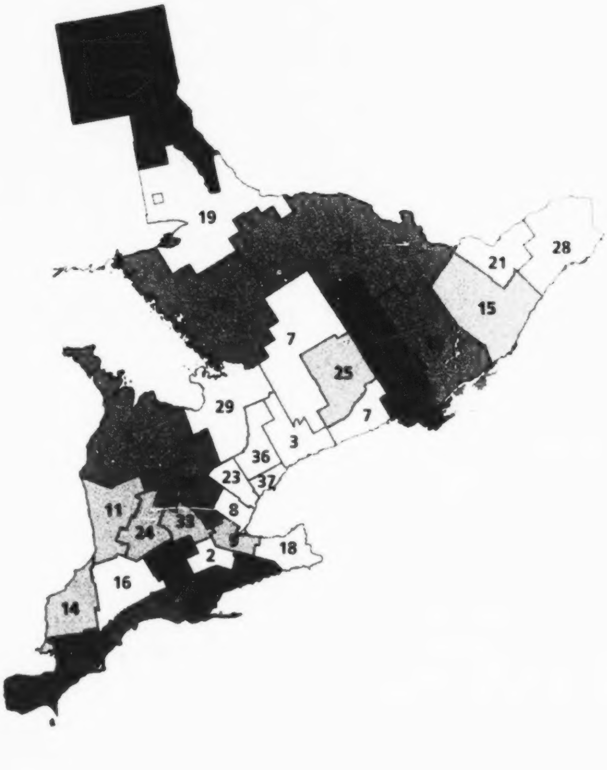


Data Source Office of the Register General and Statistics Canada
Standardized to 1991 Canadian population

Women's genetic or hormonal advantage may, in part, contribute to the lower mortality rate observed during pre-menopausal years. Other major risk factors for cardiovascular diseases include: smoking, sedentary lifestyle, obesity, high blood pressure, and high cholesterol. Compared to men, women have a more favourable risk factor profile for smoking and obesity. However, women also report being more sedentary and are more likely to have high blood pressure than men (Heart and Stroke Foundation

Exhibit 2-10. Cardiovascular Mortality Rates per 100,000 Women by Public Health Unit in Ontario, 1995–97


ONTARIO
Cardiovascular Mortality for Women by Public Health Unit (PHU)
■ 226 to 268 (6)*
☐ 211 to 226 (8)
■ 203 to 211 (6)
▨ 187 to 203 (8)
☐ 158 to 187 (9)
*Value in brackets is the number of PHUs in each category.
20
26
30
32
1


19
21
28
15
7
25
29
7
3
36
23
37
8
11
24
33
18
2
16
14

Label	Public Health Unit
1	Algoma Public Health Unit
2	Brant Public Health Unit
3	Durham Public Health Unit
4	Elgin-St. Thomas Public Health Unit
5	Bruce-Grey-Owen Sound Public Health Unit
6	Haldimand-Norfolk Public Health Unit
7	Haliburton-Kawartha-Pine Ridge PHU
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31	Thunder Bay Public Health Unit
32	Timiskaming Public Health Unit
33	Waterloo Public Health Unit
34	Wellington-Dufferin-Guelph Public Health Unit
35	Windsor-Essex Public Health Unit
36	York Public Health Unit
37	City of Toronto Public Health Unit

Data source: Statistics Canada, 1995–1997.

of Canada, 1999). According to the 1990 Ontario Hearth Health Survey, elevated cholesterol levels are about the same for men and women (Heart and Stroke Foundation of Canada, 1999).

UNINTENTIONAL INJURY

Deaths from unintentional injury, from causes such as motor vehicle injuries, poisoning, suicide and other injuries, have decreased dramatically over the last century but still continue to be an important source of mortality (Exhibit 2-4). More notably, unintentional injuries are a leading cause of potential years of life lost (Exhibit 2-3). Unintentional injuries have a big impact on PYLL because the affected population is relatively young compared to other causes of death (Exhibit 2-3).

Overall, the death rate for injuries in women (23 deaths per 100,000 women per year) is less than half that of men (51 deaths per 100,000 men per year). The difference between the sexes is greatest at younger ages and occurs for all major types of unintentional injuries (motor vehicle accidents, suicides and other injuries, and poisonings) (Exhibit 2-2). For both men and women, there are large differences in death from unintentional injuries across local Ontario regions. Northern regions have the highest death rate from unintentional injuries and these deaths have a modest contribution to the lower life expectancy in these areas.

Motor vehicle injuries are the leading cause of injury deaths. The use of seatbelts, when used appropriately, can reduce fatal injury to the front-seat passenger by about 45 percent; the risk of moderate or critical injury can be reduced by 50 percent (Department of Transportation, 2001). In the United States, fatalities from motor vehicle accidents has decreased to an all-time low (1.6 fatalities per 100 million vehicle miles travelled), accompanied by an increasing percentage of vehicle occupants who use seatbelts (Glassbrenner & Utter, 2001). According to a series of American surveys conducted by the National Center for Statistics and Analysis (Bondy & Glassbrenner, 2001), the use of seatbelts by American women has increased from 64 percent in 1994 to 77 percent in 2000. Seatbelt use by men also increased from 54 percent in 1994 to 6 percent in 2000. In the year 2000, the sex differences in seat belt use were statistically significant.

Analysis from the Ontario portion of the 1996 National Population Health Survey found that 92 percent of women drivers reported that while they were driving, they always insisted that each passenger was securely fastened in seatbelts or, in the case of young children, in car seats. The proportion who always insisted on passenger seat belt use was 82 percent for women under 25, 93 percent in women 25 to 64 years and 95 percent for women over 65 years. Among men, 81 percent always insisted that all passengers wear seatbelts or car seats. Among men drivers, 68 percent of men age 16 to 24 years, 82 percent of men ages 25 to 64 years and 89 percent of men over the age of 65 always insisted on passenger seat belt use.

The installation of air bags in newer car models is also associated with decreased motor vehicle accident fatalities. For children and smaller adults, however, there are some concerns that the strength of the air bag impact may actually cause further injury than the actual accident itself. Further research is currently underway in the United States and Canada on the association between air bag impact and collision injury.

CONCLUSIONS

Women live longer than men, but increases in life expectancy have recently been greater for men. Over the past several decades, increasing similarities between men and women in the risk factors for the major chronic diseases. This will contribute to a further narrowing in life expectancy between men and women in the coming years.

The dramatic reduction in mortality raises questions regarding future health goals. Health is commonly defined not only as the absence of disease, but also a high health-related quality of life that acts as a resource for an active and fulfilling life (World Health Organization, 1986a). Compared to men, women report a higher prevalence of conditions such as arthritis and depression that affect their health-related quality of life (Manuel & Schultz, 2001). In addition, women report more stress related to balancing the many tasks of life such as family responsibilities and work outside the home. Therefore it is important to ask how we should improve health-related quality of life in addition to reducing mortality. This presents a challenge not only for the traditionally funded health care sectors such as hospitals and physicians, but also for all sectors of our society that impact women.

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PART TWO:
MORBIDITY INDICATORS

CHAPTER 3 – HIV/AIDS

ROBERT S. REMIS

OVERVIEW

We examined the situation of HIV infection among women in Ontario based on a number of data sources, including HIV diagnostic data, reported AIDS cases, HIV-related deaths, and a database of HIV-infected women who delivered infants in the province. We also combined the data, using a spreadsheet model to estimate plausible values for HIV incidence and prevalence.

About 2,300 women have been diagnosed with HIV infection, representing 11 percent of diagnoses overall but 23 percent in the year 2000; 412 cases of AIDS have been reported among women. We estimate that, as of December 2000, approximately 2,800 women are living with HIV infection in Ontario; the majority of these women were infected through heterosexual transmission. The number of HIV-infected women has grown by over 80 percent in the past five years. Available data confirm that HIV infection is an important and growing public health problem for women.

INTRODUCTION

The HIV epidemic is a new challenge for humankind. Few countries and regions in the world have been spared to date, and Ontario is no exception. The first HIV infections in Ontario were introduced during the late 1970s among homosexual men travelling to large American cities where HIV infection was beginning to spread. Despite their relative decrease in importance in HIV statistics since the late 1980s, gay men still make up a substantial proportion of the affected population in Ontario. Nevertheless, while there remains considerable uncertainty about the current and future extent of HIV infection among women, there is little doubt that HIV is an increasing threat to the health of women in Ontario.

The principal modes of transmission by which women in Ontario acquire HIV infection are heterosexual contact and the injection of illicit drugs. The first has been by far the most frequent since the HIV epidemic began. Women infected by heterosexual contact may actually be divided into two distinct subgroups. The first group comprises women born in "HIV-endemic regions." These regions are characterized by a high HIV prevalence (often 100 or more times greater than that in Canada) and by the fact that heterosexual contact is the predominant mode of spread. They are located mostly in sub-Saharan Africa and the Caribbean. There has been substantial migration into Ontario from many of these countries, especially from East and Central Africa and the Caribbean. In a recent analysis it appeared that most HIV-infected women in this group were infected in their country of origin (Remis & Whittingham, 2000). However, there is indirect evidence that a substantial and growing proportion of heterosexually acquired HIV infections in this population has been acquired since the women arrived in Canada, likely through sexual contact with other members of the community. The second group of women infected by heterosexual contact comprises women born in Canada or in other countries with a similar epidemiology of HIV infection. Their status is of particular concern but is not well characterized for several reasons.

In this overview of HIV infection among Ontario women we examine the problem from several vantage points — namely, HIV infections diagnosed at the Ontario HIV Laboratory, incidence of reported AIDS, HIV-related mortality, mother-infant transmission, and the results of modelling of HIV incidence and prevalence among women.

METHODS

HIV SERODIAGNOSTIC TESTING

In Ontario, almost all HIV testing is carried out by the Ontario Ministry of Health and Long-Term Care at the Central Public Health Laboratory and at its regional laboratories located throughout the province. A single database is maintained, using the LAByrinth system at the HIV Laboratory of the Central Public Health Laboratory, which includes all HIV-positive tests since HIV testing began in October 1985 and all negative tests since January 1992. This database is an important tool to help monitor the HIV epidemic in Ontario.

We examined HIV tests among women since testing began in terms of absolute numbers and the proportion of overall first-time positive diagnoses, both by exposure category and by positivity rates. We were especially interested in the distribution of HIV diagnoses by exposure category, since this information reflects the likely means by which women were infected. Finally, we were interested in knowing about trends in HIV testing; to this end we examined the total number of HIV tests among women for the period for which data on negative tests are available (1992–2000).

When more than one risk factor was reported, cases were assigned to an exposure category using a hierarchy of gradated risk, with the modes of transmission associated with the highest risk assigned first, followed by others in decreasing order. For HIV diagnostic data, a distinction was made between high risk (HR) and low risk (LR) heterosexual categories as follows. Persons who reported sex with a person of the opposite sex who is known to be HIV infected or at high risk for HIV infection were classified in the HR heterosexual category. However, persons whose only risk factor was sex with a person of the opposite sex were classified in the LR heterosexual category. Further details of the methodology used for assigning the exposure category both for HIV infection and for AIDS cases are described elsewhere (Remis, Major, Bangura, Wallace, & Vermeulen, 1998). Cases without risk factor information were assigned based on data collected from follow-up questionnaires administered by the Laboratory Enhancement Study (Remis et al., 2000).

REPORTED AIDS CASES

We examined the incidence of reported AIDS cases among women since AIDS became reportable in Ontario in 1983. We used the case definition that was developed by Health Canada early in the epidemic and modified in 1987 and 1994. The AIDS case definition includes evidence of HIV infection, usually based on the results of HIV serologic testing, and the occurrence of indicator conditions that reflect severe immune deficiency. Such conditions include approximately 25 opportunistic infections and cancers that are otherwise rare in young adults. AIDS cases are reported by the treating physician to the public health unit in which she or he practises; data extracted from these case reports are regularly sent to the Public Health Branch, Ontario Ministry of Health and Long-Term Care, for compilation and analysis. There are serious problems of underreporting and delayed reporting of AIDS cases; the situation in this regard may have become worse in recent years, due in part to the increased emphasis on treating and reporting HIV infection before AIDS develops.

HIV-RELATED MORTALITY

Since 1987, deaths related to HIV infection have been identified through a special clinical modification (CM) of the ICD9 disease coding system and include codes 042, 043, and 044. Data were obtained from the Vital Statistics Division of the Registrar General by sex, age, and region of patient residence in 1997 for the purposes of a surveillance report that we prepared for the Ontario Ministry of Health and Long-Term Care. Data were available for the years 1987 to 1996. Although deaths undoubtedly occurred before 1987, they were likely relatively few in number. We have been able to estimate this number through modelling. We are currently awaiting mortality data for the years 1997 to 1999; however, they were not available in time for the present report.

MOTHER-INFANT TRANSMISSION

We obtained data from several databases to gain insight into the trends in HIV transmission infection from women to their newborn infants. In particular, the Canadian Pediatric AIDS Research Group (CPARG) has been collecting data on diagnosed HIV-infected women who have delivered infants since 1992; CPARG included cases retrospectively to 1984. Data on these infants are also part of the database and include HIV-infection status after follow-up.

With the support of Health Canada and the Ontario Ministry of Health and Long-Term Care, we have also undertaken a study of HIV seroprevalence among pregnant women. In this study we are examining the number and proportion of HIV tests carried out during prenatal care in Ontario, by region, since the new policy on universal offering of HIV testing began in January 1999. For this purpose, data were extracted from LAByrinth with respect to women who received testing for any infectious marker as part of the prenatal screening program, including hepatitis B, rubella, and VDRL. To ensure that our data are accurate, we also examined the HIV diagnostic database to identify women who have been tested through routine diagnostic testing as well. This investigation was done through a staged matching procedure looking at variations and spelling, transpositions of birth dates, and use of single versus double first names and last names. The results of the study have been presented elsewhere (Remis et al., 2001).

ITERATIVE SPREADSHEET MODEL OF HIV PREVALENCE

We also attempted to model HIV infection among women from 1978 to 2000 by exposure category using the databases indicated above and by adjusting numbers to provide a best fit with available data. This modelling was carried out using Lotus spreadsheet software (IBM-Lotus Development Corporation, Cambridge, MA).

INTERPRETIVE CAUTIONS

The observations made in this report must be interpreted with some caution. There are important limitations in the data quality within each of the sources on which we base our inferences. Diagnoses of HIV infection are subject to duplicate reporting. We have attempted to adjust for this duplication based on the data from the Laboratory Enhancement Study, but this adjustment is not always possible in a precise manner. There are also difficulties in assessing the exposure category, an important consideration in the monitoring the HIV epidemic. For a substantial proportion of HIV tests, risk factor information is not provided; therefore, we modelled the exposure category using data from the Laboratory Enhancement Study.

As noted above, there is substantial underreporting and delayed reporting of AIDS cases. With regard to underreporting, no evaluation of its extent in Ontario has been carried out for over ten years and, therefore, it is difficult to quantify the number of unreported AIDS cases. This lapse may be particularly important in recent years, when more emphasis has been placed on treatment and monitoring has focused more on HIV infection than on AIDS. It has been observed that a substantial proportion of AIDS cases in Ontario are reported only through the death certificate — a situation that may introduce distortions of the database. Also, cases often take several years to be reported. Thus, incidence in more recent years is subject to additional uncertainty and is underestimated.

With regard to mother-infant HIV transmission, the database is based on voluntary reporting from physicians caring for HIV-infected mothers and infants. Though we have some data to suggest that reporting is relatively good, it is certainly not 100 percent. The data on HIV test uptake in pregnancy are based on a matching procedure that cannot, owing to the quality of identifier data, identify all women who have had an HIV test. We have attempted to take this factor into consideration in the final estimates of HIV test uptake among pregnant women.

Finally, the HIV model presented here is subject to somewhat greater uncertainty than the databases on which it is based. Though the assumptions incorporated in the choice of model are always subject to uncertainty, these unknowns are not particularly problematic for this model. However, the model incorporates estimates of HIV incidence where only limited data are available.

RESULTS

HIV SERODIAGNOSTIC RESULTS

From October 1985 to December 2000, 21,033 first-time HIV positive diagnoses were made among adults in Ontario. Of those, 2,339, or 11 percent, were among women. The numbers of new HIV infections diagnosed among women increased steadily for the ten years following 1985; it has remained relatively stable at approximately 200 to 220 infections per year since 1994. The proportion comprised by women increased from about two percent in the first three years of HIV testing to 23 percent in the period 1997 to 2000.

Exhibit 3-1 shows the distribution of first-time HIV diagnoses by year of diagnosis and exposure category for women in Ontario from 1985 to 2000. Overall, injection drug users made up 19 percent of first-time diagnoses; women from HIV-endemic countries, 20 percent; and others infected through heterosexual contact, 52 percent. Together, these three categories account for over 90 percent of HIV diagnoses in women.

Exhibit 3-1. Number and Proportion of First-Time HIV-Positive Diagnoses (Adjusted*) among Women by Year of Diagnosis and Exposure Category, Ontario, 1985–2000

	Injection Drug Use		Clotting Factor		Transfusion		HIV-Endemic		High-Risk Heterosexuals		Low-Risk Heterosexuals		Other**		Total
Year	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1985	0	0.0	4	66.7	1	16.7	0	0.0	1	16.7	0	0.0	0	0.0	6
1986	11	40.1	2	7.1	8	30.1	0	0.0	6	22.7	0	0.0	0	0.0	28
1987	9	23.4	1	2.7	13	32.7	0	1.1	9	24.6	6	15.5	0	0.0	38
1988	21	24.0	0	0.0	23	26.7	13	15.3	25	28.9	4	5.10	0	0.0	88
1989	21	18.5	3	2.7	21	18.2	15	13.1	42	37.3	11	10.1	0	0.0	113
1990	34	20.6	2	1.3	12	7.1	50	30.3	62	37.1	6	3.7	0	0.0	166
1991	39	22.4	3	1.7	2	1.2	59	33.9	53	30.4	18	10.5	0	0.0	175
1992	29	17.0	4	2.4	13	7.5	40	23.1	59	34.2	27	15.8	0	0.0	173
1993	30	17.1	6	3.4	12	6.9	17	9.4	73	41.7	38	21.4	0	0.0	176
1994	52	24.2	2	1.0	13	6.0	37	17.2	59	27.4	50	23.0	3	1.2	216
1995	39	18.1	5	2.3	7	3.2	44	20.4	52	24.1	67	30.9	2	0.90	215
1996	40	22.2	0	0.0	10	5.3	38	20.8	37	20.1	56	30.8	2	0.80	182
1997	33	17.0	0	0.20	11	5.8	8	4.3	59	30.7	81	42.0	0	0.0	194
1998	30	15.8	0	0.0	20	10.9	38	20.0	33	17.5	67	35.8	0	0.0	188
1999	40	22.2	0	0.0	5	2.7	30	16.7	32	18.1	69	38.7	3	1.6	179
2000	15	7.5	0	0.0	8	4.0	78	38.3	26	13.0	76	37.2	0	0.0	204
Total	444	19.0	33	1.4	179	7.6	467	20.0	630	26.9	577	24.7	9	0.40	2,339

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

* *Adjusted for unknown region, sex, and exposure (see text for more details); thus, totals may differ owing to rounding*

** *Includes needlestick, acupuncture, and tattoo*

Over time, the proportion comprised by women from HIV-endemic countries increased, though there was considerable yearly variation. In the most recent year, 2000, women from HIV-endemic countries represented 38 percent of first-time HIV diagnoses, the highest proportion of any year since HIV testing began. Conversely, it appears that women infected by injection drug use decreased somewhat over the last few years, although there was considerable year-to-year variation in the proportion. Most markedly, diagnoses among women infected by heterosexual transmission in the LR heterosexual category increased dramatically in the last few years. This is the category of women who have no other risk factors for HIV but heterosexual contact and do not have a partner of the opposite sex known to be HIV infected or at high risk for HIV infection. These women made up ten percent or less of cases from 1985 to 1990, 20–30 percent of cases from 1993 to 1996, and 30–40 percent of cases from 1997 to 2000; this increase was statistically significant ($p<0.001$).

The annual number of HIV tests carried out among women in Ontario increased from 105,000 in 1992 to a peak of 162,000 in 1998. The number decreased somewhat in 1999 and 2000. Tests among women accounted for an increasing proportion of tests in Ontario, from 50 percent in 1992 to about 60 percent in recent years.

Exhibit 3-2 shows the number of HIV tests and the number of positive HIV tests by exposure category and health region for women from 1992 to 2000. Of the 1,618 first-time diagnoses, 743 were reported from Toronto, representing 46 percent of diagnosed HIV-infected women in Ontario. In Ottawa-Carleton there were 309 first-time HIV diagnoses, representing 19 percent of the diagnosed infections in Ontario. Not surprisingly, the highest positivity rates were among injection drug users and high-risk heterosexuals, with 0.84 percent and 0.36 percent, respectively. As Exhibit 3-2 shows, risk factors are unknown for a substantial proportion of women diagnosed with HIV infection.

Exhibit 3-1. Number and Proportion of First-Time HIV-Positive Diagnoses (Adjusted*) among Women by Year of Diagnosis and Exposure Category, Ontario, 1985–2000

	Injection Drug Use		Clotting Factor		Transfusion		HIV-Endemic		High-Risk Heterosexuals		Low Risk Heterosexuals		Other**		Total
Year	No.	%	No.	%	No.	%	No	%	No.	%	No	%	No.	%	No
1985	0	0.0	4	66.7	1	16.7	0	0.0	1	16.7	0	0.0	0	0.0	6
1986	11	40.1	2	7.1	8	30.1	0	0.0	6	22.7	0	0.0	0	0.0	28
1987	9	23.4	1	2.7	13	32.7	0	1.1	9	24.6	6	15.5	0	0.0	38
1988	21	24.0	0	0.0	23	26.7	13	15.3	25	28.9	4	5.10	0	0.0	88
1989	21	18.5	3	2.7	21	18.2	15	13.1	42	37.3	11	10.1	0	0.0	113
1990	34	20.6	2	1.3	12	7.1	50	30.3	62	37.1	6	3.7	0	0.0	166
1991	39	22.4	3	1.7	2	1.2	59	33.9	53	30.4	18	10.5	0	0.0	175
1992	29	17.0	4	2.4	13	7.5	40	23.1	59	34.2	27	15.8	0	0.0	173
1993	30	17.1	6	3.4	12	6.9	17	9.4	73	41.7	38	21.4	0	0.0	176
1994	52	24.2	2	1.0	13	6.0	37	17.2	59	27.4	50	23.0	3	1.2	216
1995	39	18.1	5	2.3	7	3.2	44	20.4	52	24.1	67	30.9	2	0.90	215
1996	40	22.2	0	0.0	10	5.3	38	20.8	37	20.1	56	30.8	2	0.80	182
1997	33	17.0	0	0.20	11	5.8	8	4.3	59	30.7	81	42.0	0	0.0	194
1998	30	15.8	0	0.0	20	10.9	38	20.0	33	17.5	67	35.8	0	0.0	188
1999	40	22.2	0	0.0	5	2.7	30	16.7	32	18.1	69	38.7	3	1.6	179
2000	15	7.5	0	0.0	8	4.0	78	38.3	26	13.0	76	37.2	0	0.0	204
Total	444	19.0	33	1.4	179	7.6	467	20.0	630	26.9	577	24.7	9	0.40	2,339

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long-Term Care

* Adjusted for unknown/missing sex and exposure (see text [illegible])

** Includes needlestick, acupuncture and tattoo

Over time, the proportion comprised by women from HIV-endemic countries increased, though there was considerable yearly variation. In the most recent year, 2000, women from HIV-endemic countries represented 38 percent of first-time HIV diagnoses, the highest proportion of any year since HIV testing began (Exhibit 3-1). It appears that women infected by injection drug use decreased somewhat overall over the last few years, although there was considerable year-to-year variation in the proportion. Most markedly, diagnoses among women infected by heterosexual transmission in the LR heterosexual category increased dramatically in the last few years. This is the category of women who have no other risk factors for HIV but heterosexual contact and do not have a partner of the opposite sex known to be HIV-infected or at high risk for HIV infection. These women made up ten percent of cases or less from 1985 to 1990, 20–30 percent of cases from 1993 to 1996, and 30–40 percent of cases from 1997 to 2000; this increase was statistically significant (p<0.001).

The annual number of HIV tests carried out among women in Ontario [illegible] from 105,000 in 1992 to a peak of 162,000 in 1998. The number [illegible] somewhat in 1999 and 2000. Tests among women accounted for an increasing proportion of tests in Ontario, from 50 percent in 1992 to about [illegible] percent [illegible].

Exhibit 3-2 shows the number of HIV tests and the number of positive HIV tests by exposure category and health region for women from [illegible]. Of the 1,618 first-time diagnoses, 743 were reported from Toronto, representing 46 percent of diagnosed HIV-infected women in Ontario. In Ottawa-Carleton there were [illegible] first-time HIV diagnoses, representing 19 percent of the diagnosed infections in Ontario. Not surprisingly, the highest positivity rates were among injection drug users and high-risk heterosexuals, with 0.84 percent and 0.56 percent, respectively. As Exhibit 3-2 shows, risk factors are unknown for a substantial proportion of women diagnosed with HIV infection.

Exhibit 3-2. Number of HIV-Positive Tests (p), Number Tested (n),* and First-Time HIV-Positivity Rates (%) by Exposure Category and Modified Health Region, Women, Ontario, 1992–2000

Exposure	Northern			Ottawa			Eastern, Other			Toronto			Central East, Other			Central West			Southwest			Unknown			Total		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
Injection drug use	22	1,583	1.4	39	1,891	2.1	7	1,548	0.45	44	4,084	1.1	9	1,707	0.53	11	2,159	0.51	5	1,687	0.30	14	3,337	0.42	151	17,996	0.84
Clotting factor	1	2,124	0.05	1	3,144	0.03	0	1,787	0.0	9	4,831	0.19	2	3,630	0.06	1	3,021	0.03	0	2,113	0.0	2	1,623	0.12	16	22,373	0.07
Transfusion	1	3,472	0.03	8	3,236	0.25	0	3,181	0.0	16	6,838	0.23	3	6,539	0.05	2	5,771	0.03	1	4,537	0.02	2	2,303	0.09	33	35,877	0.09
HIV-Endemic	4	144	2.8	16	954	1.7	0	172	0.0	35	1,221	2.9	2	293	0.68	2	339	0.59	4	286	1.4	4	275	1.5	67	3,684	1.8
High-risk heterosexuals	9	5,103	0.18	25	4,719	0.53	6	3,552	0.17	78	11,735	0.66	14	7,252	0.19	22	7,149	0.31	16	5,397	0.30	13	6,095	0.21	183	51,002	0.36
Low-risk heterosexuals	6	22,423	0.03	47	48,499	0.10	7	21,309	0.03	105	82,897	0.13	13	51,156	0.03	14	36,707	0.04	20	37,628	0.05	12	31,969	0.04	224	332,588	0.07
Other**	0	3,235	0.0	2	2,331	0.09	0	2,878	0.0	0	6,570	0.0	0	3,718	0.0	0	3,841	0.0	0	5,490	0.0	2	2,260	0.09	4	30,323	0.01
Unknown	28	32,991	0.08	171	72,366	0.24	26	46,587	0.06	456	278,678	0.16	66	114,390	0.06	58	81,676	0.07	71	70,494	0.10	64	55,013	0.12	940	752,195	0.12
Total	71	71,075	0.10	309	137,140.00	0.23	46	81,014	0.06	743	396,854	0.19	109	188,713	0.06	110	140,663	0.08	117	127,632	0.09	113	102,875	0.11	1,618	1,245,938	0.14

Data source: HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long Term Care.

* *Persons identified as having had more than one test within the same year are counted only once.*

** *Includes needlestick, acupuncture, and tattoo.*

REPORTED AIDS CASES

To December 2000, 6,874 cases of AIDS have been reported among adults in Ontario. Of these, 412, or 6.0 percent, have been among women. As noted above, owing to underreporting and delayed reporting, these cases do not represent all diagnosed cases of AIDS.

Of the 412 women, 88 (21 percent) were 25 to 29 years of age, 107 (26 percent) were 30 to 34 years, 59 (14 percent) were 35 to 39 years, and 51 (12 percent) were 40 to 44 years. The median age at AIDS diagnosis was approximately [illegible] years. Women from 25 to 44 years of age represented 74 percent of reported AIDS cases among women.

Exhibit 3-3 shows the number and proportion of AIDS cases by exposure category and year of AIDS diagnosis among women from 1981 to 2000. Women reporting injection drug use represented 15 percent of the reported AIDS cases, women from HIV-endemic countries, 25 percent, and those infected by heterosexual contact, 46 percent. Together these three categories account for approximately 85 percent of reported AIDS cases. There were no obvious trends in distribution of AIDS cases by exposure category over time.

Exhibit 3-3. Number and Proportion* of AIDS Cases among Women by Exposure Category and Year of AIDS Diagnosis, Ontario, 1981–2000

Year of AIDS Diagnosis	Injection Drug Use No	%	HIV-Endemic No		Heterosexual No	%	Clotting Factor No		Transfusion No	%	Occupational No		NIR No		Total
1981	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1
1982	0	–	0		0	–	0		0	–	0		0		0
1983	0	–	0		0	–	0		0	–	0		0		0
1984	0	–	0		0	–	0		0	–	0		0		0
1985	0	0.0	1	50.0	0	0.0	0	0.0	1	50.0	0	0.0	0	0.0	2
1986	1	16.7	1	16.7	1	16.7	1	16.7	1	16.7	0	0.0	1	16.7	6
1987	1	5.6	3	16.7	5	27.8	1	5.6	8	44.4	0	0.0	0	0.0	18
1988	3	15.0	2	10.0	10	50.0	0	0.0	4	20.0	1	5.0	0	0.0	20
1989	2	8.3	6	25.0	12	50.0	0	0.0	3	12.5	0	0.0	1	4.2	24
1990	3	9.7	7	22.6	17	54.8	0	0.0	4	12.9	0	0.0	0	0.0	31
1991	6	16.2	7	18.9	15	40.5	1	2.7	6	16.2	0	0.0	2	5.4	37
1992	8	21.6	9	24.3	15	40.5	1	2.7	2	5.4	0	0.0	2	5.4	37
1993	5	13.5	7	18.9	23	62.2	0	0.0	1	2.7	0	0.0	1	2.7	37
1994	6	14.6	8	19.5	23	56.1	0	0.0	0	0.0	1	2.4	3	7.3	41
1995	7	17.9	6	15.4	20	51.3	0	0.0	5	12.8	0	0.0	1	2.6	39
1996	7	20.0	13	37.1	12	34.3	0	0.0	1	2.9	0	0.0	2	5.7	35
1997	2	8.0	8	32.0	12	48.0	0	0.0	3	12.0	0	0.0	0	0.0	25
1998	7	22.6	13	41.9	9	29.0	0	0.0	0	0.0	0	0.0	2	6.5	31
1999	3	15.8	7	36.8	8	42.1	0	0.0	0	0.0	0	0.0	1	5.3	19
2000	1	11.1	2	22.2	6	66.7	0	0.0	0	0.0	0	0.0	0	0.0	9
Total	62	15.0	101	24.5	188	45.6	4	1.00	39	9.5	2	0.50	16	3.9	412

Data source: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry [illegible]

* *Row percent*

Exhibit 3-2. Number of HIV-Positive Tests (p), Number Tested (n),* and First-Time HIV-Positivity Rates (%) by Exposure Category and Modified Health Region, Women, Ontario, 1992–2000

Exposure	Northern			Ottawa			Eastern, Other			Toronto			Central East, Other			Central West			Southwest			Unknown			Total		
	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%	p	n	%
Injection drug use	22	1,583	1.4	39	1,891	2.1	7	1,548	0.45	44	4,084	1.1	9	1,707	0.53	11	2,159	0.51	5	1,687	0.30	14	3,337	0.42	151	17,996	0.84
Clotting factor	1	2,124	0.05	1	3,144	0.03	0	1,787	0.0	9	4,831	0.19	2	3,630	0.06	1	3,021	0.03	0	2,113	0.0	2	1,623	0.12	16	22,373	0.07
Transfusion	1	3,472	0.03	8	3,236	0.25	0	3,181	0.0	16	6,838	0.23	3	6,539	0.05	2	5,771	0.03	1	4,537	0.02	2	2,303	0.09	33	35,877	0.09
HIV-Endemic	4	144	2.8	16	954	1.7	0	172	0.0	35	1,221	2.9	2	293	0.68	2	339	0.59	4	286	1.4	4	275	1.5	67	3,684	1.8
High-risk hetero-sexuals	9	5,103	0.18	25	4,719	0.53	6	3,552	0.17	78	11,735	0.66	14	7,252	0.19	22	7,149	0.31	16	5,397	0.30	13	6,095	0.21	183	51,002	0.36
Low-risk hetero-sexuals	6	22,423	0.03	47	48,499	0.10	7	21,309	0.03	105	82,897	0.13	13	51,156	0.03	14	36,707	0.04	20	37,628	0.05	12	31,969	0.04	224	332,588	0.07
Other**	0	3,235	0.0	2	2,331	0.09	0	2,878	0.0	0	6,570	0.0	0	3,718	0.0	0	3,841	0.0	0	5,490	0.0	2	2,260	0.09	4	30,323	0.01
Unknown	28	32,991	0.08	171	72,366	0.24	26	46,587	0.06	456	278,678	0.16	66	114,390	0.06	58	81,676	0.07	71	70,494	0.10	64	55,013	0.12	940	752,195	0.12
Total	71	71,075	0.10	309	137,140.00	0.23	46	81,014	0.06	743	396,854	0.19	109	188,713	0.06	110	140,663	0.08	117	127,632	0.09	113	102,875	0.11	1,618	1,245,938	0.14

Data source HIV Laboratory, Laboratories Branch, Ontario Ministry of Health and Long Term Care

* *Persons identified as having had more than one test within the same year are counted only once*

** *Includes needlestick, acupuncture, and tattoo*

REPORTED AIDS CASES

To December 2000, 6,874 cases of AIDS have been reported among adults in Ontario. Of these, 412, or 6.0 percent, have been among women. As noted above, owing to underreporting and delayed reporting, these cases do not represent all diagnosed cases of AIDS.

Of the 412 women, 88 (21 percent) were 25 to 29 years of age, 107 (26 percent) were 30 to 34 years, 59 (14 percent) were 35 to 39 years, and 51 (12 percent) were 40 to 44 years. The median age at AIDS diagnosis was approximately 33 years. Women from 25 to 44 years of age represented 74 percent of reported AIDS cases among women.

Exhibit 3-3 shows the number and proportion of AIDS cases by exposure category and year of AIDS diagnosis among women from 1981 to 2000. Women reporting injection drug use represented 15 percent of the reported AIDS cases; women from HIV-endemic countries, 25 percent; and those infected by heterosexual contact, 46 percent. Together these three categories account for approximately 85 percent of reported AIDS cases. There were no obvious trends in distribution of AIDS cases by exposure category over time.

Exhibit 3-3. Number and Proportion* of AIDS Cases among Women by Exposure Category and Year of AIDS Diagnosis, Ontario, 1981–2000

Year of AIDS Diagnosis	Injection Drug Use No.	%	HIV-Endemic No.	%	Heterosexual No.	%	Clotting Factor No.	%	Transfusion No.	%	Occupational No.	%	NIR No.	%	Total No.
1981	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1
1982	0	–	0	–	0	–	0	–	0	–	0	–	0	–	0
1983	0	–	0	–	0	–	0	–	0	–	0	–	0	–	0
1984	0	–	0	–	0	–	0	–	0	–	0	–	0	–	0
1985	0	0.0	1	50.0	0	0.0	0	0.0	1	50.0	0	0.0	0	0.0	2
1986	1	16.7	1	16.7	1	16.7	1	16.7	1	16.7	0	0.0	1	16.7	6
1987	1	5.6	3	16.7	5	27.8	1	5.6	8	44.4	0	0.0	0	0.0	18
1988	3	15.0	2	10.0	10	50.0	0	0.0	4	20.0	1	5.0	0	0.0	20
1989	2	8.3	6	25.0	12	50.0	0	0.0	3	12.5	0	0.0	1	4.2	24
1990	3	9.7	7	22.6	17	54.8	0	0.0	4	12.9	0	0.0	0	0.0	31
1991	6	16.2	7	18.9	15	40.5	1	2.7	6	16.2	0	0.0	2	5.4	37
1992	8	21.6	9	24.3	15	40.5	1	2.7	2	5.4	0	0.0	2	5.4	37
1993	5	13.5	7	18.9	23	62.2	0	0.0	1	2.7	0	0.0	1	2.7	37
1994	6	14.6	8	19.5	23	56.1	0	0.0	0	0.0	1	2.4	3	7.3	41
1995	7	17.9	6	15.4	20	51.3	0	0.0	5	12.8	0	0.0	1	2.6	39
1996	7	20.0	13	37.1	12	34.3	0	0.0	1	2.9	0	0.0	2	5.7	35
1997	2	8.0	8	32.0	12	48.0	0	0.0	3	12.0	0	0.0	0	0.0	25
1998	7	22.6	13	41.9	9	29.0	0	0.0	0	0.0	0	0.0	2	6.5	31
1999	3	15.8	7	36.8	8	42.1	0	0.0	0	0.0	0	0.0	1	5.3	19
2000	1	11.1	2	22.2	6	66.7	0	0.0	0	0.0	0	0.0	0	0.0	9
Total	62	15.0	101	24.5	188	45.6	4	1.00	39	9.5	2	0.50	16	3.9	412

Data source: Ontario AIDS Surveillance Program, Public Health Branch, Ontario Ministry of Health and Long-Term Care (cases reported to July 2001).

* *Row percent*

HIV-RELATED MORTALITY

From 1987 to 1996, 4,634 deaths related to HIV infection were reported to the Registrar General of Ontario. Of these, 226 (4.9 percent) deaths were in women. Unfortunately, information on exposure category is not available on reported HIV deaths. From 1987 to 1996, 8,321 person-years of life lost were attributed to AIDS among women. Of the 224 deaths among women for which country of birth was known (all but two), 48, or 21 percent, were among women born in HIV-endemic countries.

MOTHER-INFANT HIV TRANSMISSION

Based on the data collected from 1984 to 2000, 352 HIV-infected mothers were identified by the CPARG Network; to date, 130 HIV-infected infants, or 39 percent of those born to these mothers, have been confirmed (the status of 18 infants is pending or unknown).

Exhibit 3-4 shows the distribution of the mother's exposure category for the 130 HIV-infected children by period of birth. Overall, 79 infants were born to mothers from HIV-endemic countries, representing 65 percent of the infected infants, and 33 (27 percent) infants were born to mothers infected through heterosexual contact. Babies infected from an injection drug-using mother accounted for only seven, or 5.8 percent, of the HIV-infected babies.

Exhibit 3-4. Number and Proportion* of HIV-Positive Children by Period of Birth and Exposure Category of Mother, Ontario, 1984–2000

Period of Birth	Injection Drug Use No.	%	HIV-Endemic No.	%	Heterosexual No.	%	Transfusion No.	%	Unknown No.	Total No.
1984 87	1	5.9	13	76.5	3	17.6	0	0.0	2	19
1988 89	1	7.1	5	35.7	7	50.0	1	7.1	3	17
1990 91	0	0.0	9	60.0	5	33.3	1	6.7	2	17
1992 93	1	4.0	17	68.0	7	28.0	0	0.0	2	27
1994 95	3	10.3	21	72.4	5	17.2	0	0.0	0	29
1996 97	0	0.0	9	90.0	1	10.0	0	0.0	0	10
1998 00	1	9.1	5	45.5	5	45.5	0	0.0	0	11
Total	**7**	**5.8**	**79**	**65.3**	**33**	**27.3**	**2**	**1.7**	**9**	**130**

Data source: Dr. Susan M. King, Ontario Region Canadian Pediatric AIDS Research Group

** Row percent of cases with known exposure category.*

As noted above, we also examined the uptake of HIV testing in pregnancy since the Ontario HIV screening program began in January 1999 until June 2001. During the time, 355,116 women were included. The proportion of women who were tested, either through the prenatal screening program or through HIV diagnostic testing, increased from 40 percent in January 1999 to about 80 percent in June 2001. Uptake was approximately 51 percent from July 1999 to May 2000, 52 percent from June to August 2000, and 53 percent from August 2000 to January 2001. In the latest five months of observation, uptake was about 84 percent.

Anonymous testing and testing using coded identifiers must also be considered since these tests could not be linked with the prenatal database. Based on our modelling, an additional four to five percent of pregnant women have been tested who could not be identified through our matching analysis. Overall, we estimate that in the most recent period in 2001, approximately 89 percent of pregnant women in Ontario received an HIV test.

To date, 73 HIV-positive women have been identified during the 2.5-year period. Of those, 45 were diagnosed for the first time within the prenatal screening program. The number of HIV-positive women identified through either program appears to have increased. For those identified within the program, about three infected

HIV-RELATED MORTALITY

From 1987 to 1996, 4,634 deaths related to HIV infection were reported to the Registrar General of Ontario. Of these, 226 (4.9 percent) deaths were in women. Unfortunately, information on exposure category is not available on reported HIV deaths. From 1987 to 1996, 8,321 person-years of life lost were attributed to AIDS among women. Of the 224 deaths among women for which country of birth was known (all but two), 48, or 21 percent, were among women born in HIV-endemic countries.

MOTHER-INFANT HIV TRANSMISSION

Based on the data collected from 1984 to 2000, 352 HIV-infected mothers were identified by the CPARG Network: to date, 130 HIV-infected infants, or 39 percent of those born to these mothers, have been confirmed (the status of 18 infants is pending or unknown).

Exhibit 3-4 shows the distribution of the mother's exposure category for the 130 HIV-infected children by period of birth. Overall, 79 infants were born to mothers from HIV-endemic countries, representing 65 percent of the infected infants, and 33 (27 percent) infants were born to mothers infected through heterosexual contact. Babies infected from an injection drug-using mother accounted for only seven, or 5.8 percent, of the HIV-infected babies.

Exhibit 3-4. Number and Proportion* of HIV-Positive Children by Period of Birth and Exposure Category of Mother, Ontario, 1984–2000

Period of Birth	Injection Drug Use		HIV-Endemic		Heterosexual		Transfusion		Unknown	Total
	No.	%	No.	%	No.	%	No.	%	No.	No.
1984–87	1	5.9	13	76.5	3	17.6	0	0.0	2	19
1988–89	1	7.1	5	35.7	7	50.0	1	7.1	3	17
1990–91	0	0.0	9	60.0	5	33.3	1	6.7	2	17
1992–93	1	4.0	17	68.0	7	28.0	0	0.0	2	27
1994–95	3	10.3	21	72.4	5	17.2	0	0.0	0	29
1996–97	0	0.0	9	90.0	1	10.0	0	0.0	0	10
1998–00	1	9.1	5	45.5	5	45.5	0	0.0	0	11
Total	**7**	**5.8**	**79**	**65.3**	**33**	**27.3**	**2**	**1.7**	**9**	**130**

Data source: Dr. Susan M. King, Ontario Region, Canadian Pediatric AIDS Research Group

* *Row percent of cases with known exposure category*

As noted above, we also examined the uptake of HIV testing in pregnancy since the Ontario HIV screening program began in January 1999 until June 2001. During this time, 355,116 women were included. The proportion of women who were tested either through the prenatal screening program or through HIV diagnostic testing increased from 40 percent in January 1999 to about 50 percent in June 1999. Uptake was approximately 51 percent from July 1999 to May 2000, 52 percent from June to August 2000, and 53 percent from August 2000 to January 2001. In the latest five months of observation, uptake was about 54 percent.

Anonymous testing and testing using coded identifiers must also be considered since these tests could not be linked with the prenatal database. Based on our modelling, an additional four to five percent of pregnant women have been tested who could not be identified through our matching analysis. Overall, we estimate that in the most recent period in 2001, approximately 59 percent of pregnant women in Ontario received an HIV test.

To date, 73 HIV-positive women have been identified during the 2.5-year period. Of those, 45 were diagnosed for the first time within the prenatal screening program. The number of HIV-positive women identified through either program appears to have increased. For those identified within the program, about three infected women were identified each quarter for the first five quarters of the program (January 1999 to March 2000), but about six were identified per quarter from April 2000 to June 2001. For women previously diagnosed, we observed an increase beginning somewhat later: from January 1999 to December 2000, almost two HIV-infected women were identified per quarter, whereas in the first six months of 2001, almost eight HIV-infected women were identified in each quarter.

HIV MODEL

In Ontario we estimate that approximately 2,800 women are living with HIV infection as of December 2000. This figure represents approximately 13 percent of infected persons in Ontario. The vast majority of these women (estimated at about 2,400, or 85 percent) are of childbearing age. Approximately 50 percent of HIV-infected women reside in Toronto, and 20 percent in Ottawa.

Overall, we estimate that HIV prevalence among women has increased relatively dramatically over the last five years, from an estimated 1,500 infected women in 1995 to 2,800 in 2000, for an increase of 87 percent. The annual increase during this period averaged 14 percent.

DISCUSSION

In this overview of HIV infection among women in Ontario, we have observed several important trends. First, women are increasingly affected by the HIV epidemic. The impact of HIV infection among women in Ontario has been particularly severe in the last five years. We estimate that women currently make up almost 13 percent of HIV-infected persons in Ontario and perhaps upwards of 20 percent of newly acquired infections.

Not surprisingly, the HIV epidemic among women has had important consequences for transmission of HIV infection from mother to infants, particularly among women from HIV-endemic countries. The increases in HIV infection among women infected by heterosexual contact and among those from HIV-endemic countries, both related to heterosexual transmission, are particularly concerning.

In conclusion, the impact of HIV infection among women in Ontario has been substantial and is likely to increase in future years. The precise extent of this impact is difficult to assess and predict. Clearly, better data, especially with regard to HIV incidence, the investigation of newly diagnosed infections, and special seroepidemiologic studies are required to properly monitor the evolution of the HIV epidemic among women.

ACKNOWLEDGMENTS

We wish to acknowledge the contribution of Elaine Whittingham, former research assistant at the Department of Public Health Sciences, who carried out many of the analyses reported here. Carol Major, HIV Laboratory, Ontario Ministry of Health and Long-Term Care, provided data on HIV serodiagnostic testing and invaluable advice. Data on reported AIDS cases were obtained from Dr. Evelyn Wallace and Lorraine Schiedel, Public Health Branch, Ontario Ministry of Health and Long-Term Care. The Vital Statistics Division of the Registrar General of Ontario provided HIV-related mortality data from 1987 to 1997.

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CHAPTER 4 – SEXUALLY TRANSMITTED DISEASES

HAJERA ROSTAM AND ENZA GUCCIARDI

OVERVIEW

Sexually transmitted diseases (STDs) are one of the most common causes of illness with significant health consequences in Ontario. However, STDs frequently go undiagnosed and untreated. They facilitate transmission of HIV and result in serious reproductive morbidity and mortality in women (Fleming & Wasserheit, 1999; Panchaud, Singh, Feivelson, & Darroch, 2000). STD infection is a complex health problem with a wide range of biological, psychological, and social determinants.

Chlamydia, gonorrhea, and hepatitis B, as well as non-notifiable human papillomavirus infections, are the most prevalent STDs in Ontario. Substantial progress has been made in reducing the rates of syphilis in Ontario. Chlamydia and gonorrhea affect women more than men, especially those aged 15 to 19. Chlamydia and gonorrhea rates for adolescent women aged 15 to 19 are, respectively, five and almost three times the rate of adolescent men in the same age groups in Ontario. Female rates of hepatitis B virus (HBV) are slightly lower than in males throughout all age groups. Nevertheless, women aged 20 to 39 are still at high risk for HBV infection.

Physicians can play an important part in controlling STD epidemics through risk assessment of their patients and by providing appropriate safe sex counselling. In addition, STD prevention and intervention programs should be targeted towards high risk groups such as adolescents, sexually abused children, and women in general, as well as Aboriginal populations and other groups involved in high-risk sexual activity.

BACKGROUND

Sexually transmitted diseases (STDs) are a major public health concern (Panchaud et al., 2000). They are caused by microbial pathogens including bacteria, viruses, protozoa, and ectoparasites (Patrick, 1997) that are transmitted by direct sexual contact via genital, anal, and oral fluids of an infected person and from mother to fetus (Population and Public Health Branch, 2001). Some sexually transmitted infections have long-term health consequences for women, particularly in relation to fertility (MacDonald & Brunham, 1997).

Specific pockets of STD infection are high among low-income groups, Aboriginals (Maticka-Tyndale, 1997), the homeless, people with drug dependency or an abusive partner, and sex trade workers (Champion & Shain, 1998; Maticka-Tyndale, 1997; McDonald, 1996; National Institute of Health Guide, 1995). Of great concern is the incidence of STDs among children under ten years of age, where it may be an indicator of sexual abuse.

METHODS

A literature review using primarily Ontario and Canadian data on STDs was conducted. American data were used to supplement and provide information when Canadian data were not available. STD incidence data (1992-98) by sex, age, and province were obtained from the Population and Public Health Branch Disease Surveillance On-line (http://www.hc-sc.gc.ca/pphb-dgspsp). Because many STDs are asymptomatic, many cases may go unreported, so the rates and magnitude of the STD problem tend to be underestimated.

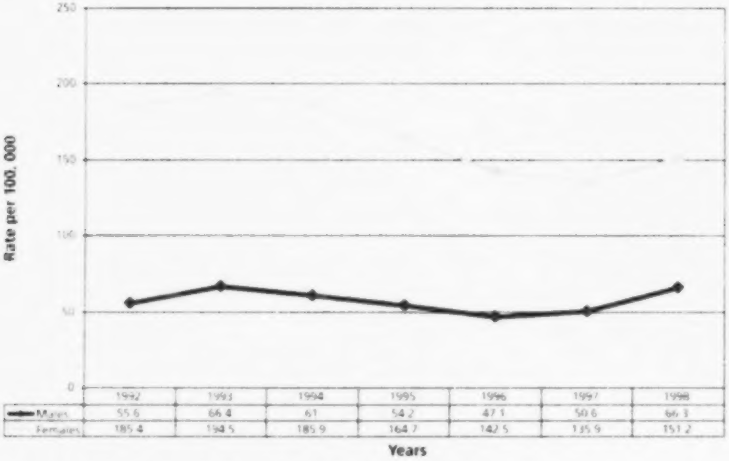
DISCUSSIONS AND FINDINGS

CHLAMYDIA

Genital chlamydia infection is the most prevalent of reportable sexually transmitted infections in North America (Population and Public Health Branch, 2001). It is transmitted through direct sexual contact with an infected individual and from the genital tract of an infected mother to her newborn. The majority of individuals infected with chlamydia have no symptoms and, therefore, act as a silent reservoir for the spread of infection. Women are disproportionately affected by complications of this infection and may not be aware that they are infected until they are cultured or have fertility problems (Population and Public Health Branch, 2001). Because of the asymptomatic nature of chlamydia, many women do not receive the needed treatment, thereby increasing the likelihood that infection will spread to the uterus and the fallopian tubes, causing a serious, painful, and long-term condition called pelvic inflammatory disease (PID). PID may lead to tubal infertility, chronic pelvic pain, and life-threatening ectopic pregnancy (MacDonald & Brunham, 1997; Population and Public Health Branch, 2000; Public Health Research Education and Developmental Program [PHRED], 2000).

Although the rates of genital chlamydia among women seemed to drop from 1992 to 1997, rates increased in 1998 to 151.2 cases per 100,000, compared to 135.9 in 1997 (Exhibit 4-1). A similar pattern was observed in men, where rates also increased to 66.3 cases per 100,000 from a rate of 50.6 cases per 100,000 in 1997. This rise in chlamydia rates is consistent with trends seen in other jurisdictions across Canada and may be related to better detection owing to improved laboratory testing of urine specimens (Ontario Communicable Disease Control, 2001).

Exhibit 4-1. Chlamydia Incidence Rates by Sex for Ontario, 1992–98

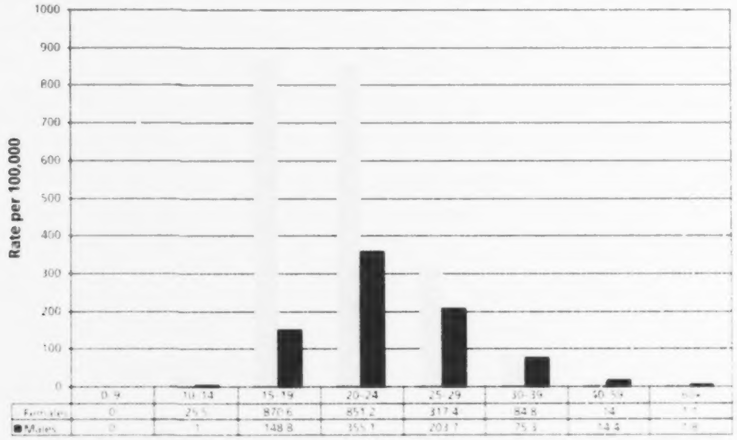


	1992	1993	1994	1995	1996	1997	1998
Males	55.6	66.4	61	54.2	47.1	50.6	66.3
Females	185.4	194.5	185.9	164.7	142.5	135.9	151.2

Data source: Laboratory Centre for Disease Control, Health Canada, 2000

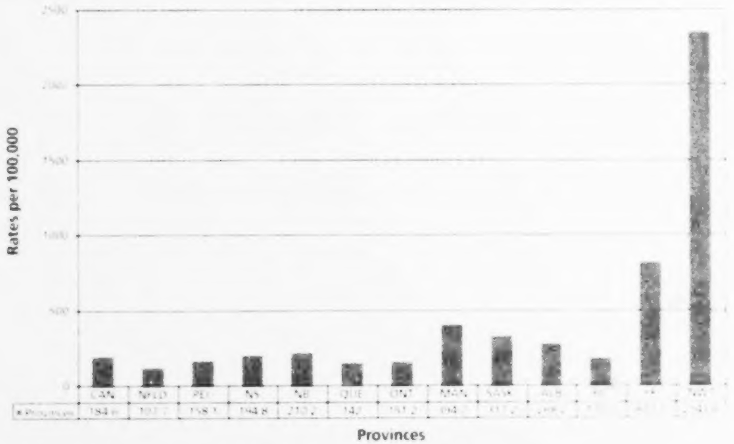
Age-specific rates in 1998 for Ontario are highest for adolescent women 15 to 19 years of age at 870.6 cases per 100,000, five times the adolescent men rate of 148.8 cases per 100,000 in this age group. Women aged 20 to 24 years show the second highest rate at 851.2 cases per 100,000, compared to men at 355.1 cases per 100,000 (Exhibit 4-2). The fact that chlamydia is more symptomatic and more frequently screened for in women than in men may contribute to the higher reported rates of STDs in women (Population and Public Health Branch, 2001). Across Canada, the highest and the lowest rate of chlamydia in women is in, respectively, the Northwest Territories (234.3 cases per 100,000) and Newfoundland (107.7 cases per 100,000) (Exhibit 4-3). Ontario's chlamydia rate of 151.2 per 100,000 women is below the national average of 184.6 cases per 100,000.

Exhibit 4-2. Chlamydia Age-Specific Rates by Sex for Ontario, 1998



Data source: Laboratory Centre for Disease Control, Health Canada, 2000

Exhibit 4-3. Chlamydia Incidence Rates by Province for Women, 1998

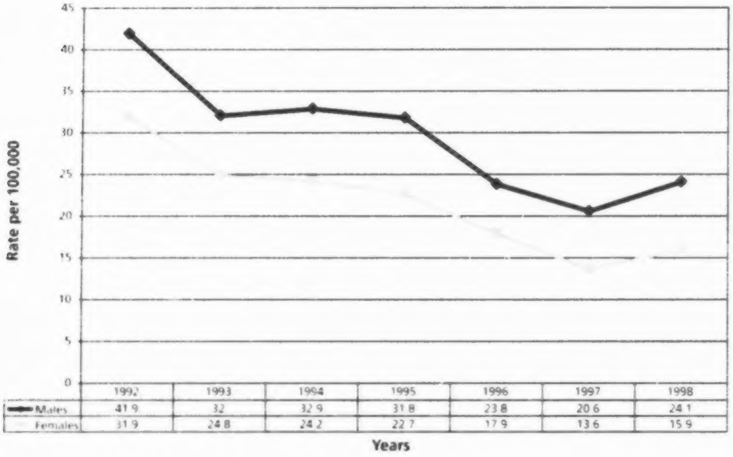


Data source: Laboratory Centre for Disease Control, Health Canada, 2000

GONORRHEA

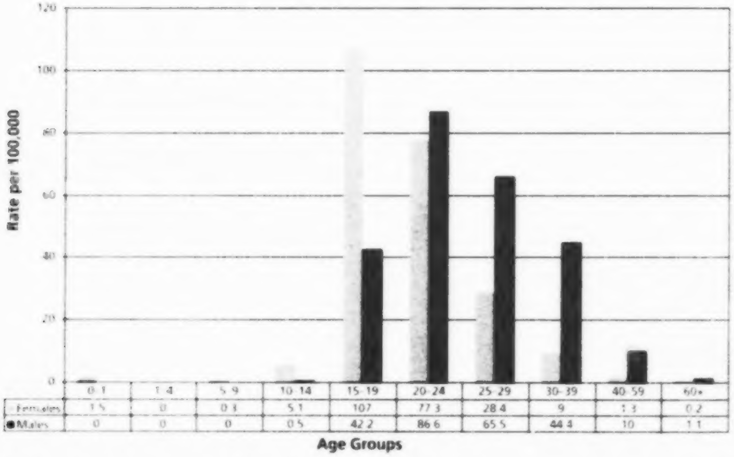
Gonorrhea is the second most commonly reported STD in Canada (Alary, 1997; Health Canada, 1999). Disease transmission and complications are similar to those of chlamydia. Women are also disproportionately affected by the infection and, if gonorrhea is left untreated, it, too, can cause PID and infertility. Infants born to infected mothers may be at risk of developing sight-threatening eye infections, scalp abscesses, or disseminated gonoccoal infections (Population and Public Health Branch, 2001).

Exhibit 4-4. Gonococcal Incidence Rates by Sex for Ontario, 1992–98



Data source: Laboratory Centre for Disease Control, Health Canada, 2000

Exhibit 4-5. Gonococcal Age-Specific Rates by Sex for Ontario, 1998

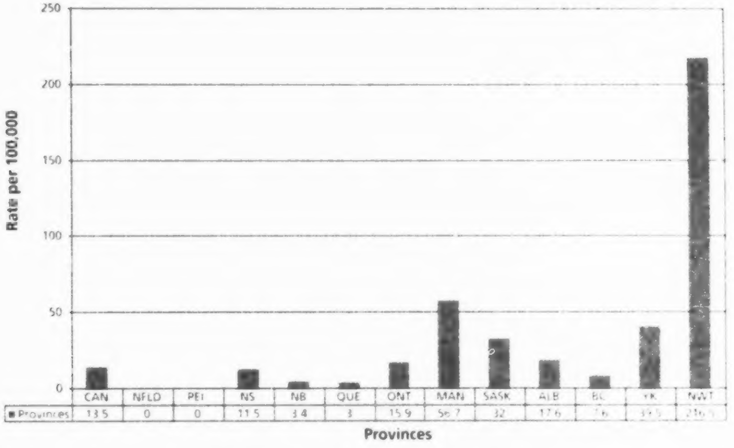


Data source: Laboratory Centre for Disease Control, Health Canada, 2000

In Ontario, from 1992 to 1997, there was a gradual decline in gonorrhea among women (31.9 cases per 100,000 in 1992 to 13.6 cases per 100,000 in 1997) and among men (41.9 cases per 100,000 in 1992 to 20.6 cases for 1996). Such a downward trend was also seen in other jurisdictions across the country (Ontario Communicable Disease Control, 2001). However, in 1998 the rates started to increase again, to 15.9 cases per 100,000 women and 24.1 cases per 100,000 men for that year (Exhibit 4-4). One reason for the recent increase in gonorrhea rates may be the development of antibiotic/drug resistant strains of the bacteria (Ontario Communicable Disease Control, 2001).

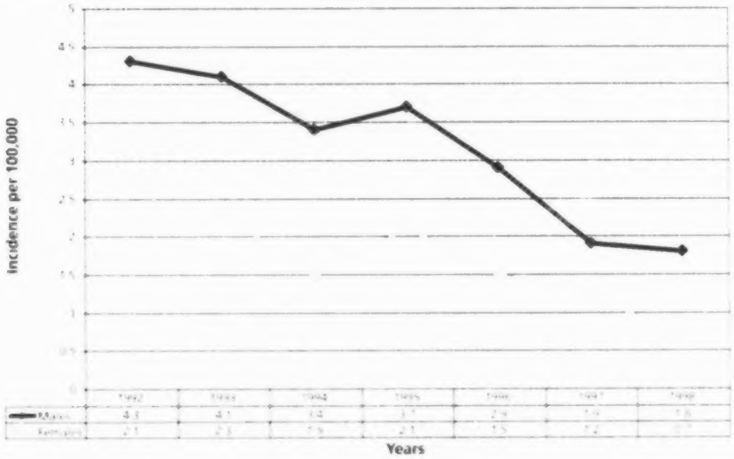
In Ontario, age specific rates in 1998 are highest for women aged 15 to 19 years at 107 cases per 100,000, 2.5 times the rate for men in the same age group (Exhibit 4-5). For ages over 20, women's rates are consistently lower than for men. Across Canada, the highest rate for gonorrhea in women is in the Northwest Territories (216.5 cases per 100,000), whereas gonorrhea is entirely absent in Newfoundland and Prince Edward Island. Ontario's rate of 15.9 per 100,000 women is above the national average of 13.5 cases per 100,000 (Exhibit 4-6).

Exhibit 4-6. Gonococcal Incidence Rates by Province for Women, 1998



Data source: Laboratory Centre for Disease Control, Health Canada, 2000

Exhibit 4-7. Hepatitis B Incidence Rates by Sex for Ontario, 1992–98



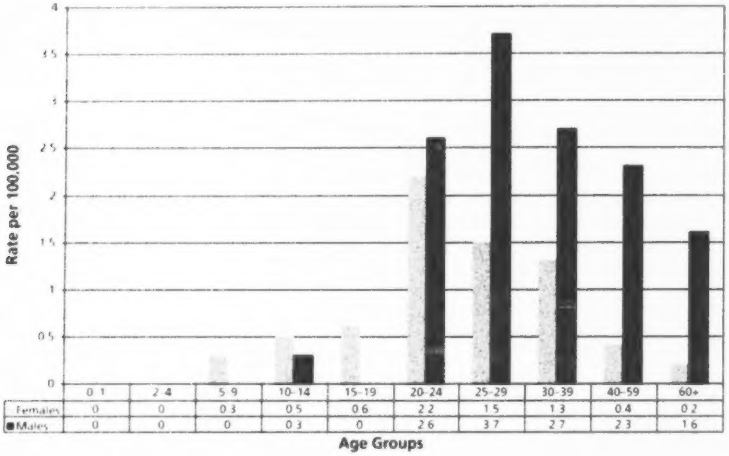
Data source: Laboratory Centre for Disease Control, Health Canada, 2000

HEPATITIS B VIRUS (HBV)

The hepatitis B virus is also transmitted sexually and is a major cause of morbidity and mortality (Poham, Zou, & Tepper, 2001; Population and Public Health Branch, 2001; Tepper & Gully, 1997). It is highly infectious and is transmitted by contact with infected blood, sharing of infected needles, unprotected sexual intercourse, and from infected mother to her newborn. Although acute infection is usually asymptomatic in both children and adults, some symptoms such as anorexia, nausea, and jaundice may occur (Population and Public Health Branch, 2001). Chronic HBV can progress to liver disease and death (Chin, 2000; Population and Public Health Branch, 2001; Zou, Tepper, & El Saadany, 2000). An estimated 15 to 25 percent of persons with chronic HBV infection will die prematurely in North America (Chin, 2000; Poham, Zou, & Tepper, 2001). Overall, from 1979 to 1997, 855 deaths were attributed to hepatitis B in Canada, of which women and men accounted for 30 percent and 70 percent of deaths, respectively. However, most people who become infected with the HBV will recover and develop natural immunity (Haley, Maheux, Rivard, & Gervais, 1999).

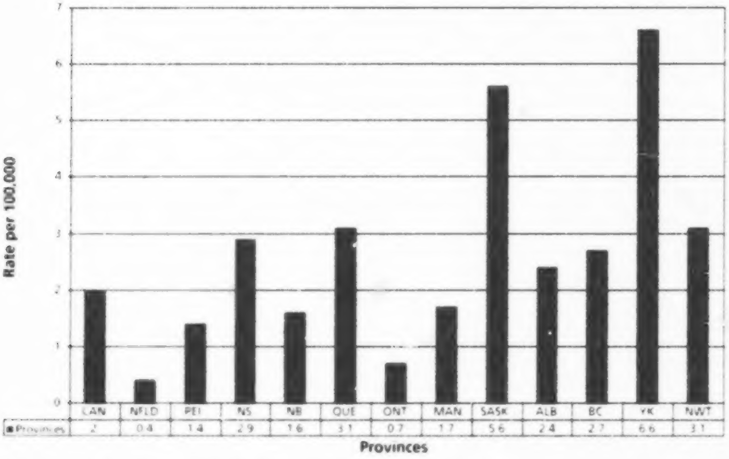
The rates of acute hepatitis B for women have been declining gradually from 1992 (2.1 cases per 100,000 in 1992 to 0.7 cases per 100,000 in 1998) (Exhibit 4-7). A similar downward trend has been observed in men. This decline could be attributed to more accurate identification of acute cases (Patrick, Wong, & Jordan, 2000).

Exhibit 4-8. **Hepatitis B Age-Specific Rates by Sex for Ontario, 1998**



Data source Laboratory Centre for Disease Control, Health Canada, 2000

Exhibit 4-9. **Hepatitis B Incidence Rates by Province for Women, 1998**



Data source Laboratory Centre for Disease Control, Health Canada, 2000

Women aged 20 to 24 years show the highest number of cases (2.2 cases per 100,000), followed by the 25 to 29 age group (1.5 cases per 100,000) (Exhibit 4-8). Female rates of HBV are slightly lower than for males across all age groups. In Canada the highest rates for hepatitis B in women occurred in the Yukon (6.6 cases per 100,000), followed by Saskatchewan (5.6 cases per 100,000) in 1998. The lowest rates in women were observed in Newfoundland (0.4 cases per 100,000), followed by Ontario (0.7 cases for 100,000). Ontario's rate was well below the national average of 2.0 cases per 100,000 (Exhibit 4-9).

HUMAN PAPILLOMAVIRUS (HPV)

Genital HPV is the most common sexually transmitted disease in North America (Dell, Chen, Ahmad, & Stewart, 2000; Health Protection Branch — Laboratory Center for Disease Control, 1999; Population and Public Health Branch, 2000). However, HPV has never been a notifiable disease in Canada, despite its strong association with cancer of the cervix. The lack of surveillance data makes national prevalence rates for HPV and carcinogenic subtypes difficult to estimate. The only available information comes from research studies, incidental data such as laboratory results, and crude prevalence/incidence rates of HPV inferred by cervical cancer rates in Canada (Hankins et al., 1999). Research has shown consistent links between certain types of HPV and cervical cancer, particularly in young women (Sellors et al., 2000).

HPV is transmitted primarily through sexual contact. "Direct skin to skin contact with the penis, scrotum, vagina, vulva and anus, mouth, or other body part of an infected person is the most common form of transmission. Transmission of virus through blood has not been indicated" (Population and Public Health Branch, 2000). Like other STDs, HPV is most often a "silent" infection. It affects the penis, scrotum, and anus in men and the cervix, vulva, and anus in women. In women, the virus can affect the cells of the cervix through inactive infection (no signs or symptoms of infection in cervical cells) and active infection (microscopic changes visible in cervical cells). The abnormal cervical cells due to HPV infection are easily detectable with a Papanicolaou (Pap) test. Regular Pap smears are vital, as HPV can become active years after infection has occurred (Population and Public Health Branch, 2000). Risk factors for infection include multiple sex partners in men and women, divorced or separated status, more than one partner in the preceding year, infection with another STD, early age of first intercourse, and cigarette smoking (Dell et al., 2000; Sellors et al., 2000).

Based on Pap smear testing performed on a sample of women in Ontario and Newfoundland, those under 25 years of age exhibited the highest prevalence of HPV infection (16–21 percent) (Ratnam, Franco, & Ferenczy, 2000). Another study conducted on 955 young Ontario women aged 15 to 49 years reported highest rates of infection in the 20 to 24 age group (24 percent), while rates became progressively lower with advancing age (Sellors et al., 2000). The burden of infection with carcinogenic types of HPV is high relative to other STDs among the study participants (Sellors et al., 2000). Several studies have shown an association with HIV and HPV (Hankins et al., 1999). A Manitoba study found that 33 percent of HIV-infected women from an ethnically mixed and predominantly low-income area were found to have some type of HPV. Hankins et al. (1999) also report similar results showing the association of HPV with HIV, particularly among Canadian women who are non-white, young (less than 30 years), and use condoms inconsistently (Hankins et al., 1999).

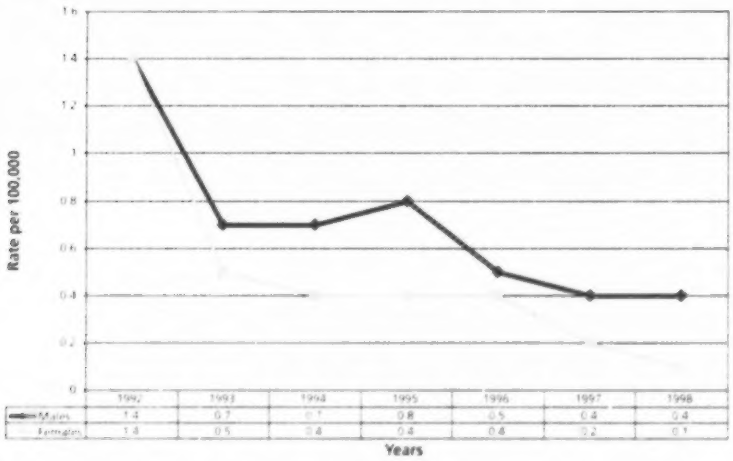
A recent Toronto-based study looked at 523 inner-city high school students to measure levels of awareness and knowledge of HPV and other STDs. Most students who knew about HPV learned about it in school classes or through public media. Female students were likely to have heard about HPV from a parent, guardian, doctor, or nurse, while no male students had heard about HPV from similar sources. Although adolescent women were more knowledgeable about Pap testing than adolescent men, only 39 percent of sexually active adolescent women, compared to 17 percent of adolescent men, could identify correctly who needs it and when to get a Pap test. Similarly, more women (57 percent) than men (17 percent) knew why a Pap test is done. Overall, most students did not know that HPV can cause cervical cancer and did not know how to prevent it. This result stood in sharp contrast to much more accurate and sound knowledge about HIV infection (Dell et al., 2000).

SYPHILIS

Syphilis is also a sexually transmitted disease. Its course is charted as primary, secondary, and tertiary stages, which reflect the extent of infection and the progression of the disease. About one-third of patients with untreated syphilis will progress to tertiary syphilis, in which the bacteria invade the brain, nerves, eyes, heart and blood vessels, liver, bones, and joints. Transmission occurs through direct contact with the infected sores, rash, or body fluids of an infected person, as well as from an infected mother to her fetus, potentially causing possible birth defects, still births, or prematurity (Population and Public Health Branch, 2001).

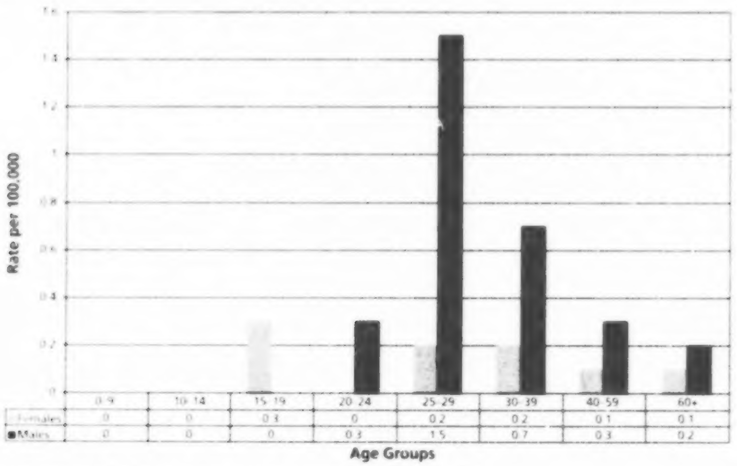
Substantial progress has been made in eliminating syphilis in Canada. The rates for infectious syphilis have declined consistently since the early 1980s and reached the brink of elimination in 1997. In Ontario, the rates for early symptomatic syphilis in women have declined gradually from 1.4 cases per 100,000 in 1992 to 0.1 cases in 1998. A similar downward trend has been observed in males (Exhibit 4-10). Interventions designed to detect and treat syphilis in women of reproductive age may have had a substantial role in these declines (Center for Disease Control, 2001). Women aged 15 to 19 show the highest rates, at 0.3 cases per 100,000 in 1998 (Exhibit 4-11). Men in the 25 to 29 age group show the highest risk (1.5 cases per 100,000).

Exhibit 4-10. **Syphilis Incidence Rates by Sex for Ontario, 1992–98**



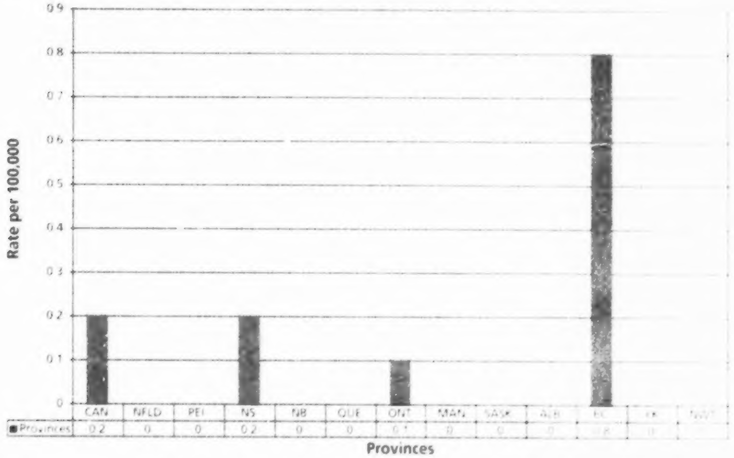
Data source: Laboratory Centre for Disease Control, Health Canada, 2000

Exhibit 4-11. **Syphilis Age-Specific Rates by Sex for Ontario, 1998**



Data source: Laboratory Centre for Disease Control, Health Canada, 2000

Exhibit 4-12. **Syphilis Incidence Rates by Province for Women, 1998**



Data source: Laboratory Centre for Disease Control, Health Canada, 2000

ADOLESCENTS AND STDs

Teens and young adults (15 to 24 years of age) have been identified as a high-risk group for STDs. They are more likely to have multiple partners, unprotected sex, and high-risk sex partners (Panchaud et al., 2000). They are also more likely than adults to engage in sexual activities under the influence of alcohol or drugs, which may lead to lack of judgment and unsafe sexual practices (Caron, Davis, Wynn, & Roberts, 1992; Edgar, Fremuth, & Hammond, 1988; Heckman et al., 1995; Mahoney, Thombs, & Ford, 1995). Adolescent women are also at higher risk of being infected by their partners, who are on average two or more years older and more likely to be infected. In such relationships, age and power differences may lessen young women's ability to initiate or insist on condom use (Bozon & Kontula, 1998).

Some of the barriers to healthy sexual decision making among adolescents include lack of a safe environment in which to talk about sex in schools, peer pressure, poor parent-adolescent communication, gender stereotypes, and limited school resources (DiCenso et al., 2001; Simcoe County District Health Unit, 1995). High school students in Nova Scotia (1,313 students) completed a questionnaire about their knowledge of sexual health, the sources for sexual health information and services, and their perception of barriers to obtaining such information and services. Adolescents identified the following barriers with respect to sexual health clinic location, hours of operation or insufficient time for appointments, and insensitive staff to deal with adolescents' embarrassment and need for confidentiality (DiCenso et al., 2001). Adolescents in a similar study in Nova Scotia (Nova Scotia Department of Health, 1996) identified similar barriers as well as health professionals' lack of comfort in talking about adolescent sexual behaviour. This reaction may explain why only 37.9 percent of female students and 8.7 percent of male students discussed their sexual history.

General medical examinations provide an excellent opportunity for health-care providers to assess patients' sexual risk behaviour and for counselling on STD prevention (Haley et al., 1999; Maheux, Haley, Rivard, & Gervais, 1997). Female adolescents tend to discuss their sexual history more easily if their physician is female rather than male (Langille, Murphy, Hughes, & Rigby, 2001). Moreover, it has been found that female physicians engage in more sexual health discussions with their adolescent female patients than do male physicians (Langille et al., 2001; Maheux et al., 1997).

Young Canadians feel that sexual health education should include accurate information on AIDS, how STDs are transmitted and prevented, and sexual activity options, rather than focusing just on abstinence and birth control options (DiCenso et al., 2001).

CONDOM USE

Used correctly, intact latex condoms can provide a continuous mechanical barrier against the risk of most STDs infections (Health Canada, 1998). As reported in the 1990 Ontario Health Survey, 42 percent of Ontario residents aged 16 to 44 years had not used condoms for protection against STDs in the 12 months prior to the survey. Of those who did use condoms, 68 percent had not used them consistently (Kasenda, Calzavara, Johnson, & LeBlanc, 1997). Similar studies across Canada confirm these results. Twenty-five percent of females in a Nova Scotia high school of varying grades (1,313 students) reported not using a condom or oral contraception at last intercourse (Langille et al., 2001). In another study of 690 sexually active adolescent women from 21 public schools in a large Ontario city, 33 percent of 17 year olds reported no use of condoms. The number reporting no condom use decreases with age (Calzavara, Bullock, Myers, Marshall, & Cockerill, 1999). In monogamous relationships, as partners get to know and trust each other, condom use declines, since both feel a sense of safety; this attitude leads to a lower and possibly unrealistic perception of the need for condoms to protect against STDs (Health Canada, 1998; Maticka-Tyndale, 1997; Traeen, Lewin, & Sundet, 1992). Research among Canadian university students found that women's intentions to use condoms are influenced by factors such as coercion and fear of abandonment by their partner (Holland, Ramazanoglu, Scott, & Sharpe, 1992; Maticka-Tyndale, 1997).

SEXUALLY ABUSED WOMEN

Despite its prevalence in the Canadian population, any history of sexual abuse towards women is rarely assessed during a general medical examination (Haley et al., 1999; MacMillan et al., 1997). Abusive relationships may cause psychological effects such as depression, minimal control in relationships, and decreased self-efficacy (Campbell, 1989; Champion & Shain, 1998; Fellitti, 1991; Hutchings & Dutton, 1993; Mason & Blankenship, 1987), all of which are risk factors for STD infection. These effects also inhibit women with STDs from making behavioural changes to prevent recurrence and transmission of STDs (Bullock, Sandella, & McFarlane, 1989; Champion & Shain, 1998; Rosen, 1991). Behavioural changes that are important preventive strategies in reducing STD acquisition, such as partner notification and insistence on condom use, may be delayed or ignored owing to fears for personal safety, threat, anger, or subsequent violence from partners (Bayer & Toomey, 1992; North & Rothenberg, 1993). A US-based study indicated that, compared to non-abused women, abused women report a greater number of sex partners, more episodes of different STDs, less use of condoms at most recent sexual intercourse with the main partner, and more use of drugs or alcohol before sex (Greenberg et al., 1999). Other groups of women vulnerable to STD through sexual assault include young adolescent females who are unable to give valid consent for sex or who lack personal assertiveness, leading to exploitative relationships (Elders & Albert, 1998; Thomas, 1999), women who are mentally ill (Coverdale, Bayer, McCullough, & Chervenak, 1995), and those with learning disorders (Thomas, 1999).

CHILD SEXUAL ABUSE AND STDs

The epidemiology of STDs in pre-pubertal children is underresearched (Anderson, 1995). The presence of any micro-organisms that are usually sexually transmitted suggests that sexual assault has taken place on a child (Hammerschlag, 1998; Robinson, 1998), but non-sexual transmission has also been reported (Neinstein, Goldenring, & Carpenter, 1984; Robinson, 1998). STDs should be assessed among child victims of sexual abuse, and sexual abuse should be suspected among children with STDs (Anderson, 1995). Gonorrhea in children over one year is usually sexually transmitted (Branch & Paxton, 1965; Robinson, 1998).

In Canada, a national survey looked at the extent of knowledge and the attitudes of 4,500 physicians and social workers about the occurrence of STDs in children and its implications for sexual abuse. While physicians scored higher on knowledge about STDs, and nurses and social workers scored higher on knowledge about sexual abuse, the overall rate of respondents who felt confident about their ability to treat children with STDs or with sexual abuse was low (Thomas & Jamieson, 1995). Detection of STD in a child has significant legal and medical implications, including the need to inform social services and to ensure appropriate follow up (Thomas & Jamieson, 1995).

ABORIGINALS AND STDs

Rates of STDs are almost four times higher in Aboriginal populations than in the general Canadian population (Calzavara et al., 1998; Calzavara et al., 1999; Lee, Brunham, Sherman, & Harding, 1987; Orr et al., 1994; Romanowski, Sutherland, Love, & Mooney, 1991).

A national survey of 658 Aboriginal men and women living in 11 reserve communities in Ontario reported that 61 percent never used condoms, 31 percent sometimes used them, and only eight percent used them always. Among those who did use condoms, eight percent reported using them for HIV/STD prevention, ten percent for birth control, and 82 percent for both reasons. Rates of condom use were higher in males and among people in their teens and twenties. In addition, worry about pregnancy rather than fear about STDs predicted higher condom use (Calzavara et al., 1998). Another study conducted in Ontario found that Aboriginal persons who had sexual partners both within and outside the community were more likely to use condoms than those who had partners within their community only. This group may serve as a pathway for the transmission of HIV/STD from one community to another (Calzavara et al., 1999).

Specific gender role behaviour between Aboriginal men and women may also make it difficult for women to insist that their partners practise safer sex. Fear of abandonment may prevent women from discussing sexual histories and from insisting on safer sex practices (Imrie, 1993).

IMMIGRANTS

The only information about immigrants' sexual health comes from studies that have looked at the differences in age at first intercourse among the immigrant and the Canadian-born population (Maticka-Tyndale, Barret, & Mckay, 2000). Immigrants present a more conservative pattern of sexual activity than that among the Canadian-born (age of first intercourse was 20 years and 17 years, respectively) (Maticka-Tyndale, Barrett, & Mckay, 2000). Immigrant youth may be tied more closely to their families because of the "strangeness" of their new land and culture, a link that may, in turn, delay sexual activity. Close parent-child ties have been repeatedly shown to relate to later ages of sexual initiation (Daugherty & Burger, 1984; Herold, 1984), and this delay may lower the risk of STD infection.

RURAL AND NORTHERN WOMEN

In Ontario between 1991 and 1996, the highest rates for PID were noted in the North region, while the reported rates of chlamydia for both males and females were also high in this region, second to Toronto. Similarly, Northern Ontario has the highest percentage in the province of teens having had sex (48 percent), as well as the highest proportion of those not using a condom the last time they had sex (34 percent) (Public Health Research Education and Developmental Program [PHRED], 2000). In rural communities, distance and lack of confidentiality are additional barriers to treatment for STDs. For instance, many students have no easy means of transportation, and there is a high risk of being seen at sexual health services or purchasing condoms at local drug stores (DiCenso et al., 2001). Most parents from rural communities in Ontario strongly agreed that sexual education about STD/HIV prevention should be provided at schools, thereby challenging the assumption that rural parents are less approving than their urban counterparts about school sexual health education programs (Mckay, 1993; Mckay, 1996; Mckay, 1998).

HOMOSEXUAL AND LESBIAN BEHAVIOUR

STDs among women who have sex with other women are often overlooked and go undiagnosed. Many lesbian women and their physicians believe that same-sex female partners are not susceptible to STDs and, therefore, are not regularly screened (Bauer & Welles, 2001; Chu, Hammett, & Buehler, 1992; Johnson, Smith, & Guenther, 1987; Robertson & Schachter, 1981). There is a lack of Canadian data on women who have sex with women and their risk of STDs. A US National Lesbian Health Care Survey (1,925 women) reported that less than 25 percent of women were worried about contracting STDs (Ryan & Bradford, 1993). Another US study reported that lesbian activity goes along with less testing for STDs (Bauer & Welles, 2001), perhaps due to the belief that sexual relations between women involve a negligible risk or because of a negative experience from the heterosexual community and health care professionals (Bauer & Welles, 2001).

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CHAPTER 5 – MENTAL ILLNESS

ELIZABETH LIN, ANNE RHODES, AND PAULA GOERING

OVERVIEW

According to the Mental Health Supplement of the 1990 Ontario Health Survey, approximately one in five women had met the criteria for a mental disorder during the previous year, a rate comparable to the 20–30 percent reported worldwide for both sexes. Women suffered from different disorders than men, however. These disorders and other measures of need were, moreover, distributed unevenly among age groups. Persons between 15 and 19 years of age reported the highest rates of mental disorder (28.7 percent for women, 34.9 percent for men), disability in a main activity (26 percent for women, 37 percent for men), and disability days (3.4 percent for women, 1.1 percent for men). Those in the older age groups (45 to 64 years and 65 and older) generally reported the lowest levels. The mental health care system in Ontario has been undergoing major changes over the past two decades. While the reasons and plans for reform have been carefully considered, both the actual restructuring and its consequences for the Ontario population are still evolving. This report describes the use of the core mental health services provided by Ontario's fee-for-service physicians over the two-year period between fiscal 1997/98 and 1999/2000, with a special focus on what changes have occurred for women and whether they differ from those that occurred for men.

BACKGROUND/INTRODUCTION

Between 1992/93 and 1997/98 provincial spending for the core mental health services delivered by fee-for-service physicians increased by 12.7 percent, a rate slightly higher than the spending on total health (Lin & Goering, 2000a). The major factor accounting for this increase was a growth in the percentage of Ontario's population using such care. The growth occurred fairly consistently across the province. Groups that had been relatively underserved in 1992/93 still lagged behind five years later. In particular, men remained less likely than women to be recipients of core mental health care despite epidemiological evidence that the overall total rates of mental disorder in Ontario are similar for men and women (Offord et al., 1996).

Since that time, there has been a growing push for accountability across all levels of government from a wide variety of stakeholders, both for absolute dollar amounts and for the cost-effectiveness of spending. Health, as the largest single item in government budgets, has come under particular scrutiny. This investigation has resulted in major limits on spending and initiatives to downsize budgets.

The question addressed in this report is how these fiscal changes in health have affected women, specifically in their use of core mental health care. Women have consistently been more likely than men to access mental health services (Rhodes, Goering, To, & Williams, 2002) and, at least in the popular stereotype, more able and willing to discuss emotional concerns.

METHODS

Self-report data from the 1990 Mental Health Supplement of the Ontario Health Survey were used to assess the prevalence of mental disorders in Ontario. Mental disorders were defined using the criteria established by the American Psychiatric Association and based on the Diagnostic and Statistical Manual of Mental Disorders (DSMIIIR) (American Psychiatric Association, 1987). The categories of psychiatric illness were affective disorders, anxiety disorders, and substance abuse and dependence disorders. Bulimia, antisocial personality disorder, and conduct disorders were categorized under "other." Disability was measured as a report of having a disability in one's "main activity" in the previous six months or identifying oneself as being "permanently unable to work." Those who reported that they were unable to function for at least one day in the past 30 days because of their emotional or mental health or because of alcohol and drug use were considered in the "disability days" category. A description of more detailed methods used to conduct the survey is reported elsewhere (Boyle et al., 1996).

The methods used to determine costs in this report are based on those employed for two Atlas reports on core mental health care (Lin & Goering, 2000a; 2000b). The data analyzed here consist of all 1997/98 and 1999/2000 OHIP claims, excluding laboratory claims, related to core mental health care services. These services include procedures related to psychiatric assessments and consultations, various types of psychotherapy, and treatments specific to psychiatry (e.g., electroconvulsive therapy). (See Appendix A for the specific list of OHIP fee codes defined as "core mental health.") These claims were used to calculate the number of users and visits, as well as the total cost billed for these services. All financial information was converted to 1999-dollar equivalents using a method that adjusted for inflation within OHIP spending (Chan, 1999).

The Registered Persons' Database (RPDB) was used to provide information about the sex, age, and geographic area of each core mental health care user. In addition, census data were used to provide a population context for interpreting the findings through the calculation of per capita rates — that is, using the Ontario population as the denominator, rather than the number of service users, to calculate utilization or spending rates.

INTERPRETIVE CAUTIONS

The prevalence data shown in this report is from a cross-sectional survey and, therefore, subject to all the caveats associated with self-report data. Since 1990 there have been no similar large sample surveys that focus on mental health.

The findings presented in this report show just one aspect (the fee-for-service sector) of women's mental health care in Ontario and can provide a broad picture only of that area. Important information such as the appropriateness and adequacy of that care or what effect it had on the lives of the women receiving it cannot be extracted from the data.

The measurement of core mental health care is not precise. The fee codes used to define this care are restricted to claims relevant to mental health, such as psychotherapy or psychiatric assessment (Lin & Goering, 1999). However, an important portion of mental health care is probably billed under more general codes.

A brief visit to allow a physician to assess whether a prescribed psychotropic medication is working properly, for example, will likely appear as a "minor assessment" — a generic code that could apply to both physical and mental conditions. One possible solution is to use a combination of fee codes and diagnosis to distinguish between minor assessments made for mental health reasons and those made for physical illnesses. A drawback to this solution is that diagnoses are not consistently used across providers (Schwartz, Perlman, Paris, Schmidt, & Thornton, 1980; Towery, Sharfstein, & Goldberg, 1980). General and family practitioners who are responsible for all the health problems of their patients will probably not see the same spectrum of illnesses or make the same distinctions as will psychiatrists, with their more specialized training (Rosser, 1996). Furthermore, physicians report anecdotally that they may "downcode" diagnoses (that is, use a less severe mental health diagnosis or even a non-mental health diagnosis) because of concerns about stigmatizing their patients. Finally, this report does not distinguish between inpatient and outpatient mental health care. Although less than one percent of the population receives inpatient mental health care annually, the costs are sizable and, therefore, they affect spending in other settings.

FINDINGS AND DISCUSSION

Exhibit 5-1 reproduces the age/sex-specific rates of mental disorder, reported disability, and self-rated mental health for respondents to the Mental Health Supplement of the 1990 Ontario Health Survey (Lin & Goering, 1996). This exhibit shows that

> While there is considerable variation within groups, two overall patterns can be seen. First, for many measures of need, there is an inverse relationship between age and need. Those between 15 and 19 years old, for example, report the highest rates of mental disorder (28.7% for women, 34.9% for men), disability in main activity (26% for women, 37% for men) and disability days (3.4% for women, 1.1% for men). Those in the older age groups (45 to 64 and 65 and older) generally report the lowest levels. The primary exception is in the self-rated mental health category, where it is the older respondents — particularly those older than 65 — who are more likely to rate themselves as having only fair or poor mental health (7.6% for women, 7.8% for men). The low disorder rates in those older than 65 should be interpreted with caution. Researchers have suggested that structured interviews do a poor job of detecting mental illness in this age group (Tweed, Blazer, & Ciarlo, 1992).
>
> Second, since men and women have different types of mental disorder, they also have different types of needs. Men are significantly more likely to have substance-related or other mental disorders (primarily antisocial personality and conduct disorder), whereas women are more likely to have affective anxiety disorders (Lin & Goering, 1996).

Exhibit 5-1. Age-/Sex-Specific Weighted Proportions of Mental Disorder, Reported Disability, and Self-Rated Mental Health Status in Ontario, 1990

	Age Group							
	15–19 Years		20–44 Years		45–64 Years		65 + Years	
Indicators	Sample**	Proportion (%)	Sample**	Proportion (%)	Sample**	Proportion (%)	Sample**	Proportion (%)
Women								
Mental Disorder								
Anxiety disorder	491	18.8	2,562	16.4	1,168	11.1	NA	NA
Affective disorder	491	6.9	2,562	6.3	1,168	4.4	1,115	1.8
Substance abuse or dependence	491	3.4	2,562	2.8	1,168	0.4	1,115	0.0
Other mental disorder	491	7.6	2,562	1.7	1,168	0.7	NA	NA
Any mental disorder	491	28.7	2,562	20.6	1,168	14.9	NA	NA
Reported Disability								
In main activity	500	26.0	2,588	14.9	1,197	13.8	1,153	11.3
Disability days*	500	3.4	2,588	1.2	1,197	0.2	1,153	0.6
Self-Rated Mental Health Status								
Percent fair and poor	499	5.6	2,582	3.6	1,193	4.1	1,148	7.6
Men								
Mental Disorder								
Anxiety disorder	509	11.4	2,262	10.3	1,021	4.8	NA	NA
Affective disorder	509	1.6	2,262	3.8	1,021	2.5	651	0.5
Substance abuse or dependence	509	11.0	2,262	10.5	1,021	2.6	651	1.8
Other mental disorder	509	20.2	2,262	4.8	1,021	1.1	NA	NA
Any mental disorder	509	34.9	2,262	21.4	1,021	8.4	NA	NA
Reported Disability								
In main activity	513	37.0	2,285	9.1	1,033	7.6	684	1.9
Disability days*	513	1.1	2,285	1.8	1,033	0.7	684	0.1
Self-Rated Mental Health Status								
Percent fair and poor	513	3.4	2,282	3.3	1,031	3.0	677	7.8

Data source: Ontario Health Survey, Mental Health Supplement

NA Not Available

- * *Respondents who were totally unable to carry out their normal activities, one or more days in the previous 30, owing to mental health or emotional problems.*
- ** *Sample reflects the number of respondents within each age group, whereas % represents the weighted percentage of individuals who reported they had experienced the disorder or disability. Weighting of the percentages was based on the sampling technique used for the survey. The N for each age group varies slightly because of the non-response to some questions by some individuals.*

Exhibit 5-1. Age-/Sex-Specific Weighted Proportions of Mental Disorder, Reported Disability, and Self-Rated Mental Health Status in Ontario, 1990

	Age Group							
	15–19 Years		20–44 Years		45–64 Years		65 + Years	
Indicators	Sample**	Proportion (%)	Sample**	Proportion (%)	Sample**	Proportion (%)	Sample**	Proportion (%)
Women								
Mental Disorder								
Anxiety disorder	491	18.8	2,562	16.4	1,168	11.1	NA	NA
Affective disorder	491	6.9	2,562	6.3	1,168	4.4	1,115	1.8
Substance abuse or dependence	491	3.4	2,562	2.8	1,168	0.4	1,115	0.0
Other mental disorder	491	7.6	2,562	1.7	1,168	0.7	NA	NA
Any mental disorder	491	28.7	2,562	20.6	1,168	14.9	NA	NA
Reported Disability								
In main activity	500	26.0	2,588	14.9	1,197	13.8	1,153	11.3
Disability days*	500	3.4	2,588	1.2	1,197	0.2	1,153	0.6
Self-Rated Mental Health Status								
Percent fair and poor	499	5.6	2,582	3.6	1,193	4.1	1,148	7.6
Men								
Mental Disorder								
Anxiety disorder	509	11.4	2,262	10.3	1,021	4.8	NA	NA
Affective disorder	509	1.6	2,262	3.8	1,021	2.5	651	0.5
Substance abuse or dependence	509	11.0	2,262	10.5	1,021	2.6	651	1.8
Other mental disorder	509	20.2	2,262	4.8	1,021	1.1	NA	NA
Any mental disorder	509	34.9	2,262	21.4	1,021	8.4	NA	NA
Reported Disability								
In main activity	513	37.0	2,285	9.1	1,033	7.6	684	1.9
Disability days*	513	1.1	2,285	1.8	1,033	0.7	684	0.1
Self-Rated Mental Health Status								
Percent fair and poor	513	3.4	2,282	3.3	1,031	3.0	677	7.8

Data source: Ontario Health Survey, Mental Health Supplement

NA Not Available

* [illegible]

** [illegible]

Between 1997/98 and 1999/2000 there was a decrease of more than 80,000 core mental health care users, with parallel decreases in the number of visits and dollars billed (Exhibit 5-2). This decline represents a change from the previous five years, where the numbers had increased by more than 100,000 users, along with rises in visits and spending (Lin & Goering, 2000a). The number of core mental health care users who were women dropped slightly more than the number that were men, with women comprising 64.2 percent of users in 1997/98 and 63.1 percent in 1999/2000. These changes occurred consistently across planning regions and district health councils (DHCs) (not shown). The percentage of users, visits, and billings that women accounted for ranged between 60.8 and 67.3 percent in 1997/98 and dropped slightly to between 59.2 and 67.0 percent in 1999/2000.

Exhibit 5-2. Proportion of Women among Core Mental Health Care Users, Visits, and Costs, Fiscal 1997/98 and 1999/2000

	Fiscal 1997/98		Fiscal 1999/2000	
Category	Total (000s)	% Women	Total (000s)	% Women
Users	882	64.2	799	63.1
Visits	5,034	62.8	4,539	62.0
Costs	$247,560	62.7	$224,365	61.9

Data source: OHIP claims data; Registered Persons Database

Exhibit 5-3 shows that the changes and their effect in terms of the provincial population differed by sex. While all users showed a slight decrease in the average number of visits (0.03 visits), the bulk of the change occurred for men (0.08 visits) rather than for women (0.01 visits). Per capita spending shows the opposite pattern. For women the decrease was $4.73, nearly twice the $2.51 decrease for men. The result was a narrowing of the per capita spending gap between men and women from $12.55 in 1997/98 to $10.20 two years later. The difference still remains substantial, however, if it is compared to the prevalence rates of psychiatric disorder for men and women (Exhibit 5-1) in 1990.

Exhibit 5-3. Average Core Mental Health Care Visit/User, Average Cost/Visit, and Per Capita Spending, Fiscal 1997/98 and 1999/2000

	1997/98	1999/2000	Change
	Total		
Average visits/user	5.71	5.68	–0.03
Average cost/visit	$49.18	$49.43	$0.25
Per capita spending	$26.78	$24.27	–$2.51
	Women		
Average visits/user	5.58	5.57	–0.01
Average cost/visit	$49.13	$49.37	$0.24
Per capita spending	$33.32	$28.59	–$4.73
	Men		
Average visits/user	5.94	5.86	–0.08
Average cost/visit	$49.26	$49.51	$0.25
Per capita spending	$20.78	$18.39	–$2.39

Data source: OHIP claims data; Registered Persons Database; 1996 Census Canada

All dollars in 1999 equivalents

The average cost per core mental health visit for women remains remarkably consistent when broken down by planning region and DHCs (Exhibit 5-4). The per capita spending, however, varies widely. In 1997/98 it ranged between $19 (North) and $48 (Toronto) for the planning regions and between $15 (Northwestern Ontario) and $43 (Metro Toronto) for the DHCs. While there was some variation in the amount that per capita spending decreased, the relative rank order of the DHCs in terms of how well resourced they were financially remained the same. However, within each area, there was a decrease in spending for women. Thus, the decrease in core mental health spending occurred for women across the province and maintained any previous geographic inequities.

Exhibit 5-4. Per Capita Spending and Average Cost per Visit for Women Core Mental Health Care Users

	Per Capita Spending		Average Cost/Visit	
	1997	1999	1997	1999
Province	**$33.32**	**$28.59**	**$49.13**	**$49.37**
District Health Councils				
South West	$25.40	$21.97	$49.05	$49.21
Essex, Kent, and Lambton	$19.93	$16.89	$46.97	$47.15
Grey, Bruce, Huron-Perth	$19.65	$16.75	$49.02	$48.89
Thames Valley	$33.92	$29.82	$50.42	$50.81
Central South	$24.71	$19.36	$50.28	$50.74
Grand River	$22.93	$18.23	$51.74	$52.56
Hamilton-Wentworth	$30.26	$22.11	$51.11	$51.56
Niagara	$19.26	$16.79	$48.02	$48.60
Central West	$27.21	$23.11	$49.48	$49.84
Waterloo Region-Wellington-Dufferin	$21.18	$18.16	$47.70	$48.06
Halton Peel	$30.32	$25.60	$50.16	$50.53
Toronto	$48.37	$43.06	$49.20	$49.13
Central East	$28.44	$23.99	$49.41	$49.96
Durham, Haliburton, Kawartha, and Pine Ridge	$23.73	$20.44	$49.61	$49.36
Simcoe York	$32.19	$26.68	$49.29	$50.01
East	$43.11	$37.54	$48.33	$48.89
Champlain	$50.53	$43.74	$48.15	$48.69
Quinte, Kingston, Rideau	$27.40	$24.28	$49.05	$49.06
North	$18.84	$14.73	$48.34	$47.96
Algoma, Cochrane, Manitoulin, and Sudbury	$20.05	$16.36	$47.49	$47.15
Muskoka, Nipissing, Parry Sound, and Timiskaming	$20.21	$17.18	$48.65	$48.69
Northwestern Ontario	$15.47	$9.67	$50.01	$49.26

Data sources: OHIP, [illegible], Registered Persons Database, 1996 Census Canada

Between 1997/98 and 1999/2000 there was a decrease of more than 80,000 core mental health care users, with parallel decreases in the number of visits and dollars billed (Exhibit 5-2). This decline represents a change from the previous five years, where the numbers had increased by more than 100,000 users, along with rises in visits and spending (Lin & Goering, 2000a). The number of core mental health care users who were women dropped slightly more than the number that were men, with women comprising 64.2 percent of users in 1997/98 and 63.1 percent in 1999/2000. These changes occurred consistently across planning regions and district health councils (DHCs) (not shown). The percentage of users, visits, and billings that women accounted for ranged between 60.8 and 67.3 percent in 1997/98 and dropped slightly to between 59.2 and 67.0 percent in 1999/2000.

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	Fiscal 1997/98		Fiscal 1999/2000	
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Data source: OHIP claims data, Registered Persons' Database

Exhibit 5-3 shows that the changes and their effect in terms of the provincial population differed by sex. While all users showed a slight decrease in the average number of visits (0.03 visits), the bulk of the change occurred for men (0.08 visits) rather than for women (0.01 visits). Per capita spending shows the opposite pattern. For women the decrease was $4.73, nearly twice the $2.51 decrease for men. The result was a narrowing of the per capita spending gap between men and women from $12.55 in 1997/98 to $10.20 two years later. The difference still remains substantial, however, if it is compared to the prevalence rates of psychiatric disorder for men and women (Exhibit 5-1) in 1990.

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	1997/98	1999/2000	Change
	Total		
Average visits/user	5.71	5.68	–0.03
Average cost/visit	$49.18	$49.43	$0.25
Per capita spending	$26.78	$24.27	–$2.51
	Women		
Average visits/user	5.58	5.57	–0.01
Average cost/visit	$49.13	$49.37	$0.24
Per capita spending	$33.32	$28.59	–$4.73
	Men		
Average visits/user	5.94	5.86	–0.08
Average cost/visit	$49.26	$49.51	$0.25
Per capita spending	$20.78	$18.39	–$2.39

Data source: OHIP claims data, Registered Persons' Database, 1996 Census Canada

All dollars in 1999 equivalents

The average cost per core mental health visit for women remains remarkably consistent when broken down by planning region and DHCs (Exhibit 5-4). The per capita spending, however, varies widely. In 1997/98 it ranged between $19 (North) and $48 (Toronto) for the planning regions and between $15 (Northwestern Ontario) and $43 (Metro Toronto) for the DHCs. While there was some variation in the amount that per capita spending decreased, the relative rank order of the DHCs in terms of how well resourced they were financially remained the same. However, within each area, there was a decrease in spending for women. Thus, the decrease in core mental health spending occurred for women across the province and maintained any previous geographic inequities.

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	Per Capita Spending		Average Cost/Visit	
	1997	1999	1997	1999
Province	**$33.32**	**$28.59**	**$49.13**	**$49.37**
District Health Councils				
South West	$25.40	$21.97	$49.05	$49.31
Essex, Kent, and Lambton	$19.93	$16.89	$46.97	$47.15
Grey, Bruce, Huron-Perth	$19.65	$16.75	$49.02	$48.89
Thames Valley	$33.92	$29.82	$50.42	$50.81
Central South	$24.71	$19.36	$50.28	$50.74
Grand River	$22.93	$18.23	$51.74	$52.56
Hamilton-Wentworth	$30.26	$22.11	$51.11	$51.56
Niagara	$19.26	$16.79	$48.02	$48.60
Central West	$27.21	$23.11	$49.48	$49.84
Waterloo Region-Wellington-Dufferin	$21.18	$18.16	$47.70	$48.00
Halton-Peel	$30.32	$25.60	$50.16	$50.53
Toronto	$48.37	$43.06	$49.20	$49.13
Central East	$28.44	$23.99	$49.41	$49.96
Durham, Haliburton, Kawartha, and Pine Ridge	$23.73	$20.44	$49.61	$49.86
Simcoe-York	$32.19	$26.68	$49.29	$50.01
East	$43.11	$37.54	$48.33	$48.89
Champlain	$50.53	$43.74	$48.15	$48.69
Quinte, Kingston, Rideau	$27.40	$24.28	$49.05	$49.69
North	$18.84	$14.73	$48.34	$47.96
Algoma, Cochrane, Manitoulin, and Sudbury	$20.05	$16.36	$47.49	$47.15
Muskoka, Nipissing, Parry Sound, and Timiskaming	$20.21	$17.18	$48.65	$48.69
Northwestern Ontario	$15.47	$9.67	$50.01	$49.26

Data source: OHIP claims data; Registered Persons Database; 1996 Census Canada

When changes in per capita spending for men and for women are compared, it is apparent that they did not apply equally. Exhibit 5-5 shows the changes in per capita spending and in average cost per visit by sex. For men, per capita costs decreased anywhere from $0.57 to $3.59. The same figures for women were $2.90 to $8.15. Changes in cost per visit varied widely (+$0.94 for men in Northwestern Ontario to +$0.83 for women in Grand River) and did not follow the same pattern as the per capita changes.

Exhibit 5-5. Changes in Per Capita Spending between 1997/98 and 1999/2000 for Women and Men by Planning Region and District Health Council

	Per Capita Spending		Average Cost/Visit	
	Women	Men	Women	Men
Province	**–$4.73**	**–$2.39**	**$0.24**	**$0.25**
District Health Councils				
South West	–$3.43	–$1.71	$0.26	$0.16
Essex, Kent, and Lambton	–$3.04	–$1.65	$0.18	$0.54
Grey, Bruce, Huron-Perth	–$2.90	–$1.43	$0.13	$0.43
Thames Valley	–$4.10	–$1.93	$0.39	$0.00
Central South	–$4.45	–$2.03	$0.55	$0.11
Grand River	–$4.70	–$2.33	$0.83	$0.21
Hamilton-Wentworth	–$8.15	–$3.14	$0.45	$0.07
Niagara	–$2.47	–$0.57	$0.58	$0.20
Central West	–$4.10	–$2.04	$0.36	$0.73
Waterloo Region-Wellington-Dufferin	–$3.02	–$1.41	$0.30	$0.65
Halton-Peel	–$4.72	–$2.40	$0.37	$0.77
Toronto	–$5.31	–$3.31	$0.07	$0.22
Central East	$4.45	$1.93	$0.55	$0.26
Durham, Haliburton, Kawartha, Pine and Ridge	–$3.29	–$1.32	$0.25	$0.14
Simcoe-York	–$5.51	–$2.51	$0.72	$0.33
East	–$5.57	–$2.66	$0.56	$0.40
Champlain	–$6.79	–$3.59	$0.54	$0.40
Quinte, Kingston, Rideau	–$3.11	–$0.89	$0.64	$0.30
North	–$4.11	–$1.93	$0.38	$0.14
Algoma, Cochrane, Manitoulin, and Sudbury	–$3.69	–$2.00	$0.34	$0.26
Muskoka, Nipissing, Parry Sound, and Timiskaming	–$3.03	–$0.71	$0.04	$0.85
Northwestern Ontario	–$5.80	–$2.88	$0.75	$0.94

Data source: OHIP claims data; Registered Persons Database; 1996 Census Canada

When changes in per capita spending for men and for women are compared, it is apparent that they did not apply equally. Exhibit 5-5 shows the changes in per capita spending and in average cost per visit by sex. For men, per capita costs decreased anywhere from $0.57 to $3.59. The same figures for women were $2.90 to $8.15. Changes in cost per visit varied widely (-$0.94 for men in Northwestern Ontario to +$0.83 for women in Grand River) and did not follow the same pattern as the per capita changes.

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	Per Capita Spending		Average Cost/Visit	
	Women	Men	Women	Men
Province	**–$4.73**	**–$2.39**	**$0.24**	**$0.25**
District Health Councils				
South West	–$3.43	–$1.71	$0.26	$0.16
Essex, Kent, and Lambton	–$3.04	–$1.65	$0.18	$0.54
Grey, Bruce, Huron-Perth	–$2.90	–$1.43	–$0.13	–$0.43
Thames Valley	–$4.10	–$1.93	$0.39	–$0.00
Central South	–$4.45	–$2.03	$0.55	–$0.11
Grand River	–$4.70	–$2.33	$0.83	–$0.21
Hamilton-Wentworth	–$8.15	–$3.14	$0.45	–$0.07
Niagara	–$2.47	–$0.57	$0.58	$0.20
Central West	–$4.10	–$2.04	–$0.36	–$0.73
Waterloo Region-Wellington-Dufferin	–$3.02	–$1.41	$0.30	$0.65
Halton-Peel	–$4.72	–$2.40	$0.37	$0.77
Toronto	–$5.31	–$3.31	–$0.07	$0.22
Central East	$4.45	$1.93	–$0.55	–$0.26
Durham, Haliburton, Kawartha, Pine and Ridge	–$3.29	–$1.32	$0.25	$0.14
Simcoe-York	–$5.51	–$2.51	$0.72	$0.33
East	–$5.57	–$2.66	$0.56	$0.40
Champlain	–$6.79	–$3.59	$0.54	$0.40
Quinte, Kingston, Rideau	–$3.11	–$0.89	$0.64	$0.30
North	–$4.11	–$1.93	–$0.38	–$0.14
Algoma, Cochrane, Manitoulin, and Sudbury	–$3.69	–$2.00	–$0.34	–$0.26
Muskoka, Nipissing, Parry Sound, and Timiskaming	–$3.03	–$0.71	$0.04	$0.85
Northwestern Ontario	–$5.80	–$2.88	–$0.75	–$0.94

Data source: OHIP claims data, Registered Persons' Database, 1996 Census Canada.

CONCLUSIONS

As stated in the 2nd edition of the Institute for Clinical Evaluative Sciences [ICES] Practice Atlas, "mental illness in Ontario is not rare. Approximately one in five OHS Supplement respondents met the criteria for a mental disorder during the year before the study, a rate comparable to 20 percent to 30 percent reported worldwide … Women suffer from different disorders than men, and the distribution of these disorders and the other measures of need are unevenly distributed among the age groups … mid- to-late-adolescents of both sexes were of greatest need" (Lin & Goering, 1996, pp. 268–269).

The changes in core mental health care that occurred between fiscal 1997/98 and 1999/2000 were different in two distinct ways from the earlier changes documented between 1992/93 and 1997/98. First, both users and billings decreased by 9.4 percent, compared to increases of approximately 13 percent between 1992/93 and 1997/98. Second, while the earlier increases occurred consistently across demographic groups, the decreases between 1997/98 and 1999/2000 have affected men and women differently. Drops in per capita spending have been almost two times greater for women Ontarians than for men. Futhermore, for men, the decrease has coincided with a decrease in the average number of core mental health care visits per user. For women, the average number of visits has remained virtually the same. Combined with the slight increase in the average cost per visit and the fact that there is little difference between the sexes in their average visit cost, these findings indicate that, proportionately, fewer Ontario women received core mental health services in 1999/2000 compared to two years earlier. The overall resource allocation effect is a narrowing of the spending gap between men and women.

Whether these are desirable changes or not is an open question and definitive answers will depend on data from other health-care and social service sectors as well as population health information on the full spectrum of the varying types of mental illnesses that affect men and women. These patterns may indicate that more men in need are receiving the necessary services, that women are turning to other avenues of care (e.g., community agencies, self-help, or informal networks of family and friends), or that women with less serious conditions are less likely to receive core mental health care. Any of these scenarios would be desirable, even cost effective, if the care received is appropriate and adequate. If the changes described in this report have occurred in isolation, however, they could imply that fewer women and possibly also fewer men are receiving the care they may need.

APPENDIX A: OHIP MENTAL HEALTH CARE FEE CODES[1]

OHIP Fee Code	Description
G471	Electroconvulsive therapy (single/multiple)
K004	Family psychotherapy
K006	Hypnotherapy
K007	Individual psychotherapy
K008	Diagnostic/therapeutic interview, child psychiatric problem/learning disability
K010	Group psychotherapy — per member (7th hour onward/day)
K011	Group psychotherapy (hypnosis)
K012	Group psychotherapy (4 people)
K024	Group psychotherapy (5 people)
K025	Group psychotherapy (6–12 people)
N110	Lobectomy
Z458	Electroconvulsive therapy (cerebral)
Psychiatrist-only fee codes	
A191	Minor assessment
A193	Specific assessment
A194	Partial assessment
A195	Consultation
A196	Repeat consultation
A197	Consultation on behalf of disturbed child (interview with parents)
A198	Consultation on behalf of disturbed child (interview with child)
A395	Limited consultation
C121	Further (hospital) fees — visits due to intercurrent illness
C192	Hospital subsequent visits (up to 5 weeks)
C193	Hospital specific assessment
C194	Hospital specific reassessment
C195	Hospital consultation
C196	Hospital repeat consultation
C197	Hospital subsequent visit (6th–13th week)
C198	Hospital concurrent care
C199	Hospital subsequent visit (after 13th week)
C395	Hospital limited consultation
K190	Individual psychotherapy
K191	Family psychiatric care — Inpatient
K192	Individual hypnotherapy
K193	Family therapy (inpatient)
K194	Group hypnotherapy
K195	Family therapy (outpatient)
K196	Family psychiatric care — outpatient
K197	Individual psychotherapy (outpatient)
K198	Psychiatric care (inpatient)

K199	Psychiatric care (outpatient)
K200	Group psychotherapy (inpatient — 4 people)
K201	Group psychotherapy (inpatient — 5 people)
K202	Group psychotherapy (inpatient — 6–12 people)
K203	Group psychotherapy (outpatient — 4 people)
K204	Group psychotherapy (outpatient — 5 people)
K205	Group psychotherapy (outpatient — 6–12 people)
K206	Group psychotherapy (outpatient — per member, 7th hour onward)
K207	Group psychotherapy (inpatient — per member, 7th hour onward)
K568	Diagnostic interview of child/parent
K620	Mental Health Act assessment — consultation
K623	Mental Health Act assessment — application
K624	Mental Health Act assessment — certification
K629	Mental Health Act assessment — recertification
W195	Long-term institutional care — consultation
W196	Long-term institutional care — repeat consultation
W395	Long-term institutional care — limited consultation

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[1] Based on original list of mental health-related codes from the Ontario Ministry of Health, with the exception that the following codes were deleted

C982	*Palliative care*
K002	*Interview with relatives on behalf of patient*
K003	*Interview with CAS or legal guardian on behalf of patient*
K013	*Counselling (educational)*
K014	*Counselling (transplant recipients, donors, etc.)*
K015	*Counselling (relatives of terminally ill patients, etc.)*
K016	*Genetic assessment*
K019	*Genetic counselling (individual family)*
K020	*Genetic counselling (relatives)*

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CHAPTER 6 – EATING DISORDERS

ENZA GUCCIARDI AND DONNA E. STEWART

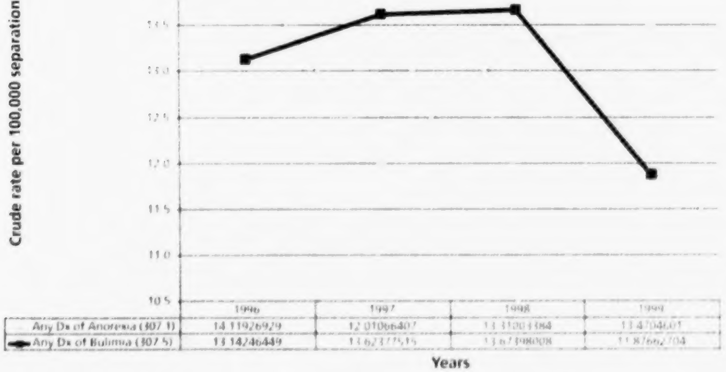
OVERVIEW

Eating disorders and disturbances are characterized by an abnormal perception of one's body image — weight, or shape, or both. This perception is expressed as an obsessive preoccupation with food and weight that may lead to health-risk behaviours. Clinical eating disorders include anorexia nervosa, bulimia nervosa, and eating disorders not otherwise specified. This report will describe traditional eating disorders. (See Chapter 21 on physical activity and weight and chapter 18 on self-reported health practices for overweight and obesity, which affect over 30 percent of Ontario women.)

Eating disorders and eating disturbances affect a much broader population than was previously recognized. Although eating disorders are observed across all age groups, the desire for the ideal thin body during a vulnerable stage of physical and emotional maturation places adolescent women at highest risk. It is alarming that eating disorders and eating disturbances are increasingly identified among pre-pubescent youth. Eating disorders are also common among women from various ethnic or visible minority groups and among women with disabilities, though the prevalence is not known. In 1999 Ontario women, in comparison to men, accounted for 95 percent of the reported hospitalized cases of anorexia nervosa and more than 90 percent of the reported hospitalized cases of bulimia nervosa. Inpatient hospital separations decreased for both anorexia (4.6%) and bulimia (9.6%) between 1996 and 1999 (see Exhibit 6-1). This decrease may be due to improved outreach programs or to increased pressure on psychiatric beds, resulting in fewer cases being admitted to hospital. Preventative education, early detection, and more research among subpopulations at possible risk for eating disorders are recommended. Challenges facing women with eating disorders include the absence of local ambulatory specialized programs and medical care, especially for those in rural and northern Ontario.

A literature review was conducted using primarily Ontario and Canadian data. American and international data were also used either to supplement the Canadian literature or to provide information when Canadian content was not available.

Exhibit 6-1. **Inpatient Crude Hospital Separation Rates for Anorexia and Bulimia for Ontario Women, 1996–99**



Data source: Canadian Institute of Health Information

BACKGROUND

DEFINITION OF THE DISORDERS

Eating disorders are characterized by an underlying fear of weight gain or of becoming fat, in addition to feelings of ineffectiveness, loss of power, and low self-esteem (American Psychiatric Association, 1994). Anorexia nervosa (AN) is expressed by engaging in a severely caloric restrictive diet, resulting in a body weight which is substantially below that expected for age and height. It may also be accompanied by the misuse of diuretics, laxatives, enemas, and diet pills (American Psychiatric Association, 1994). Bulimia nervosa (BN) is identified by frequent fluctuations in weight, as recurrent episodes of compulsive bingeing are followed by self-induced vomiting, purging, fasting, laxative use, and/or excessive exercise in an attempt to avoid weight gain (American Psychiatric Association, 1994). Eating disorders not otherwise specified (ED.NOS) are disturbed eating behaviours that do not meet the criteria for any specific eating disorder. Binge-eating disorder or compulsive eating, which may result in problems with overweight and obesity, is classified under ED.NOS (American Psychiatric Association, 1994). (See Chapter 18 for a discussion of overweight and obesity, which affect a larger percentage of Ontario women.)

ETIOLOGY

Most theoretical models of eating disorders describe the risks as multifactorial and include cultural, individual, and familial factors (Garfinkel & Garner, 1982). Body image concerns and preoccupation with body weight increase as girls become older and more aware of the idealized societal preference for a thin body shape (Thompson & Chad, 2000). During the past decades the depiction of slim women in the media and in popular culture has often been offered as an explanation for the increase in eating disorders among young women. It is believed that these women are especially vulnerable to the pressures of popular culture and that their behaviour and beliefs with regard to weight control are motivated by attempts to resemble media idols (Field, Camargo, Taylor, Berkey, & Colditz, 1999; Hoskins & Dellebuur, 2000).

Research has also suggested an association between childhood sexual abuse and eating disorders. According to the 1990 Ontario Health Survey, Mental Health Supplement, women with BN reported greater levels (33 percent) of childhood abuse than their non-abused counterparts (Garfinkel et al., 1995), but a slightly lower frequency of abuse (25 percent) was reported in a Toronto-based clinical population (DeGroot, Kennedy, Rodin, & McVey, 1992). Interestingly, among the BN purging group, one in two respondents reported previous sexual abuse, compared to one in five among the BN non-purging respondents (Garfinkel et al., 1996). Similarly, an American national survey found that girls reporting either sexual or physical abuse were at higher risk of developing eating disorders and that they were three times as likely to binge and purge as non-abused girls (32 percent vs. 12 percent) (The Commonwealth Fund, 1997). Abused girls were also more likely than non-abused girls to think they were overweight and to diet to control their weight (The Commonwealth Fund, 1997). The high rate of eating disturbances among young women is thought to be associated with a negative self-image resulting from the abuse (The Commonwealth Fund, 1997).

The same American survey reported that girls with poor mental health, such as those with depressive symptoms and low self-confidence, were also more likely to engage in unhealthy eating behaviour and to perceive themselves as overweight than were girls who had no mental health problems (The Commonwealth Fund, 1997). Girls with depressive symptoms reported bingeing and purging at more than twice the rate of those with few or no depressive symptoms (30 percent vs. 11 percent) (The Commonwealth Fund, 1997). Girls with low self-confidence dieted at nearly double the rate of girls with high self-confidence (71 percent vs. 39 percent) and were four times as likely to binge and purge (33 percent vs. eight percent) (The Commonwealth Fund, 1997).

Family risk factors for eating disorders may include a family history of eating disorders and family psychopathology. People with a sibling or a parent who has an eating disorder are also at increased risk of developing one (Garfinkel & Garner, 1982). Many clinical studies among subjects with BN reported higher rates of parental psychopathologies, depression, alcoholism (Garfinkel & Garner., 1982), suicide attempts, and sociopathic behaviours (Hudson, Pope, Jonas, Yurgelun-Todd, & Frankenburg, 1987; Kassett et al., 1989; Keck Jr. et al., 1990; Strober, Lampert, & Morrell, 1990). According to the 1990 Ontario Health Survey, Mental Health Supplement, women with BN had witnessed high levels of parental discord and reported high parental psychopathologies (Garfinkel et al., 1996), especially among those with BN who engage in purging behaviours (Garfinkel et al., 1996).

HEALTH CONSEQUENCES

Eating disorders may contribute to long-term morbidity and co-morbidity. The literature suggests a link between disordered eating and being overweight (Jones, Lawson, Daneman, Olmsted, & Rodin, 2000). Weight loss strategies are often ineffective and may actually result in weight gain and eating disturbances (Jones et al., 2000). Furthermore, dietary restraint, exercise, diet pills, and the use of laxatives to achieve weight loss are all associated with or the cause of an increased risk of obesity (Stice, Cameron, Killen, Hayward, & Taylor, 1999). Binge eating has also been shown to result in weight gain and increased risk of obesity (Mussell et al., 1995).

The starvation associated with anorexia nervosa may also delay gastric emptying and cause sudden drops in blood pressure (due to body positioning or movement), hypothermia, anemia, endocrine abnormalities, osteoporosis and fractures, and stunt growth and delay development in children and adolescents (Affenito & Kerstetter, 1999). Chronic vomiting, as in BN, can increase the risk of dehydration, kidney stones, dental caries, esophageal perforation, and disturbances of body electrolytes and fluids (Affenito & Kerstetter, 1999). Women with eating disorders are also at an increased risk of infertility (Girardon & Corcos, 1999; National Council of Welfare, 1998; Stewart, Robinson, Goldbloom, & Wright, 1990) and of fetal complications such as miscarriages, prematurity, low birth weight, fetal malformations, and low Apgar scores (Affenito & Kerstetter, 1999; Aneshensel, Frerichs, & Clark, 1981; Morrill & Nickols-Richardson, 2001; Stewart et al., 1990). Mothers who have or had an eating disorder may also create abnormal behavioural patterns when feeding their own children. This behaviour in turn gives rise to a cycle that leads to second-generation problems such as irregular feeding schedules, detached non-interactive mealtimes, use of food for non-nutritive purposes, and eating disorders (Agras, Hammer, & McNicholas, 1999; Stewart, 1992; Waugh & Bulik, 1999; Whelan & Cooper, 2000).

Eating disorders may also be linked to co-morbid psychological problems including depression, affective disorder, anxiety, obsessive compulsive disorders, impulse disorders, diminished libido, altered sleeping patterns, irritability, and suicide attempts (Affenito & Kerstetter, 1999). Ontario women with BN had higher reported levels of affective disorders, anxiety, depression, and alcohol abuse than those without BN (Garfinkel et al., 1995; Garfinkel et al., 1996; Toner, Garfinkel, & Garner, 1988). Particularly among teenaged girls, smoking and substance abuse are much more prominent among those with eating disorders than among girls with healthy eating habits (The Commonwealth Fund, 1997; Crisp, Sedgwick, Halek, Joughin, & Hamphrey, 1999; Ross & Ivis, 1999).

AN and BN are also associated with significantly elevated mortality rates. AN has a higher mortality rate than BN (Vitiello & Lederhendler, 2000) owing to the complications of starvation, electrolyte imbalances, or suicide (Crow, Praus, & Thuras, 1999; Herzog et al., 2000). Reported Standardized Mortality Ratios (SMR) for AN range between 4.71 and 12.82 across several studies (Crow, Praus, & Thuras, 1999). A recent review of the literature reported a crude mortality rate of 0.30 percent for BN (Barker & Tepper, 1997) compared to a reported 0.56 percent for AN (Sullivan, 1995).

PREVALENCE

Although abnormal body image is common in both sexes, women tend to diet more often than men and are ten times more likely to develop an eating disorder (Federal, Provincial, and Territorial Working Group on Women's Health, 1993). The prevalence of eating disorders is difficult to obtain, since many people with eating disorders have not been hospitalized, are reluctant to seek medical care, or may not even be aware that they have an eating disorder. Based on the reported prevalence in many research samples, it has been estimated that about one to two percent of young adult women suffer from AN and BN (Fombonne, 1995; Hoek, 1993). According to the Ontario Health Survey, Mental Health Supplement, the lifetime prevalence of BN (criteria according to the DSM-III-R) in women aged 15 to 65 was 1.1 percent in 1990 (Garfinkel et al., 1995). Although epidemiological research can approximate the prevalence of eating disorders within a population, hospitalization data are the most recent and accessible information available (see methods section below). Unfortunately, hospital data only capture the more severe cases and do not identify individuals with eating disorders who may visit clinics, use hospital outpatient services, or use no health-care services at all. Currently, there is no existing process for collecting this information systematically across Ontario.

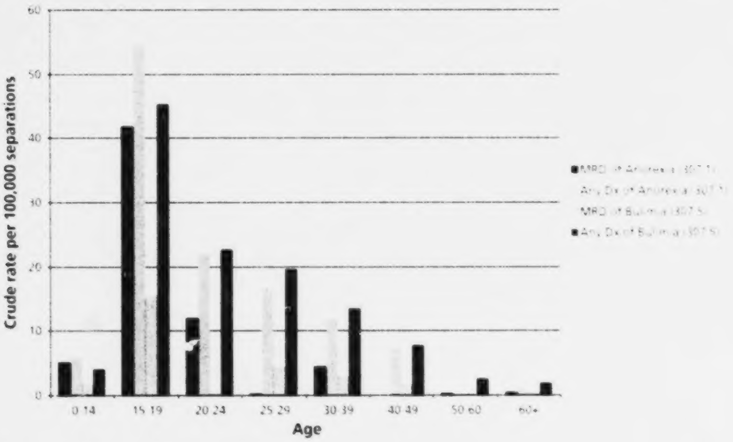
HOSPITALIZATION

Many women are unaware of or deny the detrimental effects of their harmful eating behaviours and conceal their disorder. Associated behaviours include ambivalence and avoidance of treatment (Ramsay, Ward, Treasure, & Russell, 1999). According to the Day Hospital Treatment Program at the Toronto General Hospital, University Health Network, individuals usually take about nine to 11 years from the onset of an eating disorder to the time they seek medical help (Kaye, Kaplan, & Zucker, 1996). Patients who have had AN for many years, or who have critically low body weights or seriously disturbed electrolytes and have been unable to make lasting changes in their eating behaviours, may require hospitalization (The National Eating Disorder Information Centre, 1989). Admission to hospital or a day-treatment unit can provide an opportunity to restore normal metabolic function and eating patterns in a structured and controlled manner.

METHODS AND INTERPRETIVE CAUTIONS

Inpatient hospital separation data for Ontario was obtained from the Canadian Institute of Health Information (CIHI) and provided by the Canadian Eastern Health Partnership (CEHIP). The most responsible diagnosis (MRDx) and any separations (any Dx) from hospital with an ICD-9 code of 307.1 for anorexia nervosa and 307.5 for bulimia and other unspecified disorders of eating were extracted from 1996 to 1999. The MRDx provides an indication of the severity of AN and BN (including other and unspecified disorders of eating), while any Dx provides the closest indication of the prevalence of severe eating disorders in Ontario. Crude hospitalization rates, age-specific rates, and age-standardized hospitalization rates per 100,000 separations were calculated.

Exhibit 6-2. Inpatient Age-Specific Hospital Separation Rates for Anorexia and Bulima for Ontario Women by Age, 1996–99



Data source: Canadian Institute of Health Information

There may be duplicate patients within this database. CIHI provides information on the number of times each of the diagnoses is made, and not the number of people with the diagnoses. An estimation of 2.5 was used to represent the number of cases in certain age groups where cell counts were less than five and therefore suppressed (Exhibit 6-2). Other provincial and international standardized comparable rates were unobtainable.

FINDINGS AND DISCUSSION

In 1999 Ontario women accounted for 95 percent of the reported hospitalized cases of anorexia and more than 90 percent of the reported hospitalized cases of bulimia. Inpatient crude hospital separations in Ontario for any diagnosis of AN or BN and other unspecified disorders of eating appear to be slightly decreasing. Inpatient hospital separations decreased for both AN (4.6%) and BN (9.6%) between 1996 and 1999 (Exhibit 6-1), although rates reported for AN have been variable over time. These decreases may be due to improved Ontario outreach programs, which specialize in prevention and treatment to help individuals receive specialized care sooner and closer to home than before and or to increased pressure on psychiatric beds, resulting in fewer cases being admitted to hospital.

Age-specific hospital separation rates (both MRDx and any Dx) are highest for adolescent women aged from 15 to 19 years, and they slowly decrease with age (Exhibit 6-2).

Exhibit 6-3. **Age-Standardized Inpatient Hospitalization Separation (Any Dx) Rates per 100,000 for AN and BN in Women across Health Regions in Ontario, 1996–99**

	Rate by Regions for Females, 1996–1999							
	Central East	Central South	Central West	East	North	South West	Toronto	Ontario
AN	15.1	10.6	13.5	13.2	18.1	18.9	11.5	14.0
BN	14.0	15.0	11.9	18.1	16.6	15.9	9.9	13.8

Data source: Canadian Institute of Health Information

Across Ontario health regions, age-standardized hospital separation rates for AN were highest for women in the Southwest and the North regions and lowest in the Central South and the Toronto regions (Exhibit 6-3). Rates for BN were highest among women in the North and East regions and lowest in the Toronto and the Central West regions. Challenges facing those with eating disorders include the absence of local ambulatory specialized programs and medical care, especially for women in rural and northern Ontario — a lack that may explain why eating disorder hospital separation rates are higher in these areas. Toronto and Central Ontario have more outpatient and day-patient facilities and support groups — services that may prevent admissions. For example, the University Health Network, Toronto General Hospital Eating Disorder Program, alone reported 3,400 day/night care visits, compared to 2,751 patient days, in 2000/2001.

SUBPOPULATIONS

Adolescents

Although distorted body images and eating disorders are experienced by women of all ages, the highest rates of eating disorders occur among young women aged 12 to 24. The peak age of onset for eating disorders is between 14 and 18 years (Jones et al., 2000; Lucas, Beard, O'Fallon, & Kurland, 1991; Rooney, McClelland, & Crisp, 1995). Many young women do not meet the criteria for an eating disorder but may still exhibit subclinical symptoms that can harm their health. A recent school-based population study assessed the prevalence of disordered eating attitudes and behaviours among adolescent women aged 12 to 18 years from schools in Toronto, Hamilton, and Ottawa. The study found that current dieting to lose weight was reported by 23 percent of participants, binge eating by 15 percent, self-induced vomiting by 8.2 percent, and the use of diet pills by 2.4 percent (Jones, Bennett, Olmsted, Lawson, & Rodin, 2001). These disordered eating behaviours were found to increase gradually throughout adolescence (Jones et al., 2001).

Body shape dissatisfaction, social physique anxiety, and preoccupation with weight are health concerns not confined only to adolescent groups but present also in children. This finding is highlighted by a recent Canadian study concluding that 34 percent of the pre-pubescent girls, 36 percent of the early pubescent girls, and 76 percent of the post-pubescent girls are dissatisfied with their body shape (Thompson & Chad, 2000).

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Immigrant and visible minority women

Although eating disorders occur among women of different culture and colour, there is little information about their occurrence in these groups, particularly in Canada. American studies suggest that, compared to Caucasian women, eating disturbances are equally common among Hispanic women, more frequent among Native Americans, and less frequent among Black and Asian American women (The Commonwealth Fund, 1997; Crago, Shisslak, & Estes, 1996). Eating disorders can be related to or affected by cultural norms in dietary habits and attitudes, family structures, parent-child relationships patterns, and values about femininity, body image, and beautification (Pan, 2000; Pate, 1992). Cultural factors may protect against or create a culturally based predisposition to acquire an eating disorder.

The process of acculturation and assimilation, which is identified through the desire by individuals to "fit in" with the more dominant norms, may influence body image perception, eating attitudes and eating behaviours, and give rise to eating disorders among immigrant women and women of visible minority groups. As these women attempt to become part of the North American culture, they become more influenced by the dietary attitudes and aesthetic values of Caucasian women, who tend to strive for a thin body size. An American study, for instance, identified risk factors for eating disorders as greater among minority women who are young, heavy, more educated, and identify with white, middle-class values (Crago et al., 1996). According to a qualitative study of 17 pregnant Southeast Asian women in Montreal, more acculturated women were more likely to be concerned with thinness and to limit their weight gain during pregnancy, compared to their less acculturated counterparts (Hyman & Dussault, 2000).

Interestingly, several studies (Crago et al., 1996; Fitzgibbon, Blackman, & Avellone, 2000) observed that being overweight is a risk factor for eating disorders among minority women, whereas perceiving oneself to be overweight when one is not is more likely to be a significant risk factor among Caucasian women of all age groups.

Women with disabilities

Young women with physical disabilities are at high risk of developing eating disorders. Members of this population are believed to be especially vulnerable to eating disorders because their physical disabilities may involve body image disturbances, feelings of lack of control resulting from a need for assistance from others (Minchom et al., 1995), and an emphasis on stable weight maintenance to sustain mobility (Janssen, van Oers, van der Woude, & Hollander, 1994; Thomas, 1999). Furthermore, women with disabilities may share symptoms similar to those found in individuals with eating disorders — namely, poor self-esteem, depression, and the incidence of childhood sexual and physical abuse that may increase their risk of eating disorders (Silber, Shaer, & Atkins, 1999). Findings from a statewide population-based survey suggest that adolescents with disabilities are more likely than adolescents without disabilities to be concerned about weight-related issues and to use unhealthy weight control practices (Neumark-Sztainer, Story, Falkner, Beuhring, & Resnick, 1998). In contrast, an American case control study among women with serious disfiguring or disabling conditions reported that they appeared to worry less about small changes in weight and shape than did women without disabilities. However, adults whose disabling condition had begun during childhood or teenage years felt subjectively fatter and had more negative appraisals of their bodies than their non-disabled counterparts (Ben-Tovim & Walker, 1995). The literature suggests that the development of negative body attitudes are more likely to occur if the emergence of a chronic physical condition appears during adolescence, rather than at birth or in adulthood (Ben-Tovim & Walker, 1995; Fisk, 1986; Mayer & Eisenberg, 1982).

Many women with intellectual disabilities also experience disordered eating patterns, some of which may result from their specific syndrome. Relatively common abnormal eating behaviours (which may be associated with binge eating) include abnormally increased appetite for and consumption of food, continuous eating and drinking, eating too quickly, and constant food seeking and food stealing (Gravestock, 2000). AN in adults with intellectual disabilities may be related to previous dieting, family psychopathology and conflicts, identity, bereavement, sexuality issues, sexual abuse, and physical, psychiatric, and behavioural regression (Gravestock, 2000).

Eating disorders may also be more common in some chronic illnesses. For instance, the incidence of eating disorders is almost twofold in adolescent women with Type 1 diabetes mellitus compared to their non-diabetic peers in Ontario (Jones et al., 2000). The cycle of weight loss and weight gain of diabetes management may increase body dissatisfaction and the drive for thinness in vulnerable young women (Daneman & Rodin, 1999).

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CHAPTER 7 – SUICIDE AND SUICIDE BEHAVIOUR

PAUL S. LINKS

OVERVIEW

In Canada, over the last decade, approximately 4,000 individuals each year took their own lives. Suicidal behaviour is complex, with important psychological, social, biological, and cultural contexts. In Western society, men typically have higher rates of suicide, while women have higher rates of suicidal ideation, self-injurious behaviour, and suicidal behaviour. The suicide rate by age peaks for women between the age of 45 and 54, while men show a bimodal pattern, with peak rates in young adulthood (ages 25–34) and in the elderly (75 or over).

One factor known to be associated with increased rates of suicidal behaviour is a history of abuse. The relationship between childhood sexual abuse and adult-onset depression exists even after considering other factors that may be associated with adult-onset depression.

In general, immigrant women from southern Europe have lower suicide rates, while higher rates, in keeping with rates from their country of origin, were found for eastern and northwestern Europeans. Ethnic cohesion is inversely related to the incidence of suicide in immigrants. Compared to the general population in Quebec, the Inuit in that province demonstrated increased rates of 1.5 times for lifetime prevalence of suicidal ideation and 3.5 times for lifetime prevalence of suicide attempts. Inuit women aged 15 to 24 were 18 times more likely to have attempted suicide, compared to those over 44 years of age. Inuit women are a particularly high-risk group for suicidal ideation and behaviour.

Researchers and policy makers need to have better population-based data on suicide attempts and self-injurious behaviours. Women at high risk for suicide and suicide attempts are readily identifiable. Research should target and test preventive interventions for these high-risk women.

INTRODUCTION

Global estimates suggest that one million people committed suicide in the year 2000 (Ji, Kleinman, & Becker, 2001). In Canada, over the last decade, approximately 4,000 individuals each year have taken their own lives. In 1996 there were 3,941 suicides in Canada and 1,087 in Ontario. Suicide is the second leading cause of death for children, adolescents, and youth aged ten to 34 years of age. Without question, suicide is an important health outcome, yet it continues to defy simplistic explanations. Suicide is a multidimensional behaviour with important psychological, social, biological, and cultural aspects.

Characteristic of this complexity is the "gender paradox in suicide" (Canetto & Sakinofsky, 1998). In Western society, men typically have higher rates of suicide, while women have higher rates of suicidal ideation, self-injurious behaviour, and suicidal behaviour. This report on suicide as a women's health issue will examine definitions of suicide, suicidal attempts and self-injurious behaviour, prevalence, and some unique risk and protective factors. It will conclude with a discussion of the implications for prevention and policy formulation for suicide in women.

DEFINITION

Although suicide has been scientifically studied for over one hundred years, the field is still plagued by definitional problems. The cause of death is classified by coroners and medical examiners using the "NASH" classifications of natural causes, accidental deaths, suicides, homicides, or undetermined (O'Carroll et al., 1996). However, suicide as a cause of death may be underreported and/or biased owing to the sex of the deceased. For example, women are more likely to commit suicide by ingesting poisons, and these deaths are more likely to be called "accidental poisonings or undetermined" rather than suicides. Deaths due to firearms are more prevalent in men than women and are less likely to be attributed as accidental (Canetto & Sakinofsky, 1998). Cultural attitudes towards suicide may affect those who determine the cause of death, as they may be reluctant to classify a female death as suicide, compared to a male death (Canetto & Sakinofsky, 1998).

Non-lethal self-injurious behaviour has varying terminology including self-harm, self-mutilation, suicide gestures, suicide attempts, and partial suicides. The difficulty primarily relates to the many intentions that might lead to self-injurious behaviour. Parasuicide includes self-harm behaviour with intent to die, as well as self-injurious behaviour with little or no intent to die (Kreitman, 1977). O'Carroll et al. (1996) defined a "suicide attempt" as "a potentially self-injurious behaviour with a nonfatal outcome, for which there is evidence (either explicit or implicit) that the person intended at some (nonzero) level to kill himself/herself. A suicide attempt may or may not result in injuries." This definition will be used in this report.

The term "suicidal behaviour" will be used to refer to all types of non-fatal and fatal self-injurious behaviour or in discussion where information about the specific aspects of the behaviour is not available or not relevant (Canetto, 1997).

METHOD

Medline searches for major review papers were carried out using the key words "suicidal behaviours" and "women," with the search limited to English literature, female sex, and the years January 1, 1991, to August 1, 2001. Forty-two papers were identified, of which nine were selected for review. A second Medline search yielded 49 papers using the key words "suicide" and "women," with the search limited to English literature. An additional seven papers were chosen for review.

The review was organized to address specific risk factors: childhood physical and sexual abuse, reproductive processes, and women from minority groups (Brockington, 2001). Additional references were selected from a manual search of the journals *Crisis and Suicide* and *Life-Threatening Behavior* for the years 1997 to 2001. Specific reports for Canadian populations were available from the book *Suicide in Canada* (Leenaars et al., 1998).

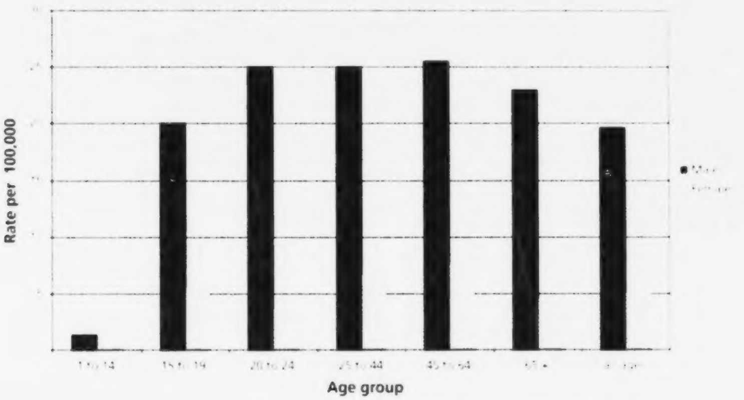
PREVALENCE RATES

SUICIDE RATES

In Canada 3,681 suicides were reported in 1997 for all ages and both sexes. Among men, 2,914 took their lives, compared to 767 women, leading to a ratio of almost four to one (Statistics Canada, 1997).

Published rates for 1995–97 are available for Ontario. Among men in Ontario, 2,367 men died by suicide, compared to 729 women, leading to a ratio closer to

Exhibit 7-1. Suicide Rate by Age, Canada, 1997



Data source: Statistics Canada, Catalogue 82F0075XCB

three to one. Exhibit 7-1 provides the Statistics Canada suicide rate per 100,000 population by sex for the year 1997.

Comparing the rate of suicide (i.e., the number of suicides per 100,000 people), the rate for Ontario was 9.2 per 100,000; the rate for all of Canada was 12.9 per 100,000 (Statistics Canada, 1996). The age-adjusted rate allows us to compare areas after differences in the age of the population have been taken into account. Exhibit 7-2 shows suicide rates across 16 District Health Units in 1996. The highest rates for women (and men) are found in the north of the province. These rates are over twice as high as for the province as a whole.

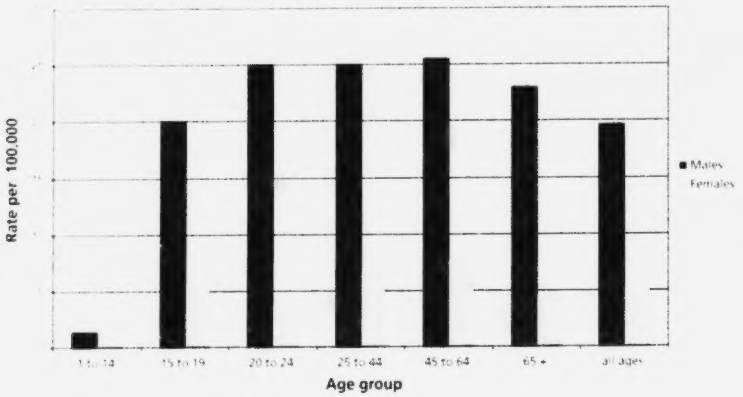
Two main features differentiate the suicide rates in men compared to women in Canada. After the Second World War the suicide rates in individuals aged 15 to 34 dramatically rose over the next three decades, but more so for men than for women (Sakinofsky, 1998). In Quebec this accelerated growth rate in young men continued into the 1990s (Boyer, Legare, St-Laurent, & Preville, 1998). The suicide rate tends to peak for women between the ages of 45 and 54, while for men there are two age groups that show the highest rates: young adulthood (ages 25 to 34) and the elderly (75 or over) (Lester & Leenaars, 1998).

Exhibit 7-2. Suicide Deaths: Age-Standardized Suicide Rate per 100,000 Population by Sex and District Health Council, Ontario, 1996

Health Region	Age-Standardized Rate per 100,000	Female Rate per 100,000	Male Rate per 100,000
Ontario	9.2	4.2	14.5
Champlain	10.3	4.7	16.1
Quinte, Kingston, Rideau	10.0	4.7	15.5
Durham, Haliburton, Kawartha, and Pine Ridge	8.5	2.4	15.0
Toronto	8.3	5.0	11.9
Simcoe-York	6.0	2.9	9.3
Halton-Peel	6.8	3.6	10.1
Waterloo Region-Wellington- Dufferin	8.2	3.7	8.2
Hamilton-Wentworth	8.1	3.6	13.0
Niagara	8.3	3.6	13.8
Grand River	9.2	1.9	17.2
Thames Valley	10.1	4.8	15.8
Essex, Kent, and Lambton	11.1	4.1	18.5
Grey, Bruce, Huron-Perth	9.2	2.4	16.4
Muskoka, Nipissing, Parry Sound, and Timiskaming	13.3	5.5	21.8
Algoma, Cochrane, Manitoulin, and Sudbury	14.9	4.6	25.5
Northwestern Ontario	21.5	10.2	32.8

Data source: Health Indicators, December 2000

Exhibit 7-1. Suicide Rate by Age, Canada, 1997



Data source: Statistics Canada, Catalogue 82F0075XCB

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Toronto	8.3	5.0	11.9
Simcoe-York	6.0	2.9	9.3
Halton-Peel	6.8	3.6	10.1
Waterloo Region-Wellington- Dufferin	8.2	3.7	8.2
Hamilton-Wentworth	8.1	3.6	13.0
Niagara	8.3	3.6	13.8
Grand River	9.2	1.9	17.2
Thames Valley	10.1	4.8	15.8
Essex, Kent, and Lambton	11.1	4.1	18.5
Grey, Bruce, Huron-Perth	9.2	2.4	16.4
Muskoka, Nipissing, Parry Sound, and Timiskaming	13.3	5.5	21.8
Algoma, Cochrane, Manitoulin, and Sudbury	14.9	4.6	25.5
Northwestern Ontario	21.5	10.2	32.8

Data source: Health Indicators, December 2000

SUICIDE ATTEMPT RATES

There are no national population-based data on suicide attempts. However, studies consistently show that suicide attempts are much more common than completed suicides and that the estimated ratio of attempted suicides to completed suicides might be 50 to one (Moscicki, 1994).

Compared to men, women more commonly attempt suicide. For example, the Epidemiologic Catchment Area Study, a five-site general population survey in the United States, reported that the lifetime prevalence of attempted suicide among adult women was 4.2 percent compared to 1.5 percent among men (Moscicki, 1994). However, these lifetime rates were felt to be subject to differential recall by the respondents, as the one-year prevalence of attempted suicide did not differ significantly by sex (Moscicki, 1994).

The most systematic study of attempted suicide in Canada ascertained rates in Edmonton for the year 1993/94 (Bland, Dyck, Newman, & Orn, 1998). These researchers defined suicide attempts using a slightly broader definition than the one employed in this report; however, their study did not include cases of habitual repetitive self-mutilators. All persons attending an emergency room in all Edmonton hospitals following a suicide attempt were included. The study was able to calculate age- and sex-specific attempt rates based on the 1993 population of Edmonton.

The results indicated that women accounted for 60.7 percent of the persons attempting suicide, giving a female-to-male ratio of 54:1. The rate varied considerably by age. Under the age of 15 years, the rate was almost 3.5 times higher in girls than in boys; almost equal for women and men aged 30 to 34 years; increased to a rate of 2.11 for ages 45 to 49; and fell to below 1.0 for age 55 or over. The overall incidence rate for the Edmonton population 15 years or over was 376 per 100,000 per year; the rate for women was 440, and for men 309. Suicide attempt rates varied by marital status: rates in single compared to married women were 4.3 times greater, and rates in men compared to women were 4.9 times greater.

In Edmonton the most commonly employed method was medication overdose; women, compared to men, were significantly more likely to overdose (80.3 percent vs. 65.6 percent). Pain medications such as acetaminophen were most commonly used for overdoses, followed by minor tranquillisers. This attempt rate is obviously an underestimate of the suicide attempt rate, as the study included only persons coming to an emergency room.

SELF-INJURIOUS BEHAVIOUR

Various forms of self-injurious behaviour have been documented (Simeon & Favazza, 2001); impulsive self-injurious behaviours such as wrist cutting, skin burning, or self-hitting are common. These behaviours are often intended to prevent the individual from becoming suicidal and are frequently found in individuals with a history of suicide attempts.

No population-based estimates of the rates of impulsive self-injurious behaviours exist (Simeon & Favazza, 2001). Favazza (1996) conjectured, however, that the incidence of impulsive self-injury might be at least one per 1,000 people annually.

Within the Diagnostic and Statistical Manual (DSM), "borderline personality disorder" is the only diagnosis for which suicidal behaviour is a criterion (American Psychiatric Association, 1994). Approximately 80 percent of cases of "borderline personality disorder" are women (Paris, 1996). In addition to having self-injurious behaviours, women with this diagnosis are at considerable risk for suicide and suicide attempts. In a review of studies of adolescents and young adults (15–29 years) who took their own lives, borderline personality disorder was diagnosed in 33 percent of cases (Runeson, 1989). The lifetime incidence of suicide in individuals with borderline personality disorder is estimated, from longitudinal studies, to be approximately nine percent, which is comparable to the lifetime risk of schizophrenia (Davis, Gunderson, & Myers, 1999).

RISK AND PROTECTIVE FACTORS

Factors that are more relevant to suicide behaviours in women than in men are reviewed, although some of the factors are related to the risk of suicidal behaviour regardless of sex.

CHILDHOOD SEXUAL AND PHYSICAL ABUSE

Childhood sexual abuse is more common among girls than boys and estimates suggest that the ratio of female to male victims might be as high as 12 to one (Silverman, Reinherz, & Giaconia, 1996; Weiss, Longhurst, & Mazure, 1999). Childhood physical abuse is more common in boys than in girls (Malinovsky-Rummell & Hansen, 1993). There are no studies that examine the relationship between childhood sexual and physical abuse and suicides (Santa Mina & Gallop, 1998).

Since 1988, 29 studies have examined the relationship between childhood abuse and self-harm, suicidal ideation, and/or suicide attempts. Of these studies, only three failed to find an association between childhood abuse and suicidal behaviour. The association between childhood abuse and suicidal behaviour is strong; those with a childhood history of abuse have a 1.3 to 70 times higher rate of suicidal behaviour.

The association between childhood sexual and physical abuse and suicidal behaviour may be a likely cause rather than an identifier of a high-risk group. Clarifying the relationship between childhood sexual and physical abuse and suicidal behaviour will assist the development of clinical interventions to reduce the risk in exposed individuals. Moreover, a decline in the incidence of childhood abuse will likely reduce the number of women in adulthood at risk for suicidal behaviour.

HORMONAL EFFECTS

Depression is twice as common in women as in men, and this difference arises in adolescence (Sakinofsky, 1998; Seeman, 1997). Onset of, or worsening of, depressive episodes (and suicidal impulses) are more likely during the premenstrual period (Kornstein, 1997). However, the research relating suicidal attempts to menstrual cycle phases is inconclusive, and many previous studies have failed to find a relationship between the menstrual cycle phase and suicidal behaviour (Baca-Garcia, Diaz-Sastre, De Leon, & Saiz-Ruiz, 2000).

Both pregnancy and the postpartum period may trigger the onset of clinical depression. However, the association between suicidal behaviour and postpartum depression is less firmly established (Brockington, 2001). Although the link between the reproductive process and the risk of suicidal behaviour requires further study. Seeman (1997) summarized the relationship between mood disorders and female hormones by stating, "Many factors seem to play a greater role in mood disorders than do female hormones."

SOCIAL FACTORS

Certain social factors may define women at high risk for suicidal behaviours. Suicide rates for both men and women appear to be higher for divorced or widowed than for married persons (Moscicki, 1994). However, rates in divorced women were only slightly elevated, while the rates were lowered in single women (Kposowa, 2000). A strong positive association between the divorce rates and suicide rates has been found in Canada (Leenars & Lester, 1999).

In Western cultures it is not clear whether the disruption of marriage leads to the risk of suicide or whether persons at risk for suicide are more likely in unstable marriages (Moscicki, 1994). In China, Ji, Kleinman, and Becker (2001) suggested that rural women are at risk because of intolerable social situations, such as physical and psychological oppression from families and marital partners.

Women in medical occupations appear to be at increased risk for suicide. Women physicians in the United States show suicide rates three to four times that of white women in the population generally (North & Ryall, 1997). However, the suicide rate for female physicians is lower than for male physicians. In Sweden, Arnetz et al. (1987) found that the rate of suicide for women doctors was 4.5 times the rate of other academics and 5.7 times the rate of the general population. Among nurses, occupational stress and access to a means of suicide may be important factors for an increased risk (Hawton & Vislisel 1999).

In summary, social factors such as divorce and certain occupational factors may define populations of women at risk for suicide. Further study is needed to understand the mechanisms leading to the increased risk and how preventive factors might be developed to modify this elevated risk.

IMMIGRANT WOMEN AND MINORITY GROUPS

The risk of suicide for immigrant women compared to native-born women in Canada has been little studied. In the United States, data from the National Longitudinal Mortality Study (1979–89) compared the mortality rates of immigrants 25 years or older to individuals born in the United States (Singh & Siahpush, 2001). Immigrant women showed a 39 percent higher risk of suicide compared to those born in the United States. The differences in overall mortality were not explained by differences in socioeconomic factors between the two groups. The authors suggested that the differences might be due to behavioural, lifestyle, cultural, and psychosocial characteristics (Singh & Siahpush, 2001).

Suicide rates for immigrants, compared to Canadian-born individuals, varied by country of birth; overall, however, immigrant women made up 28.1 percent of all immigrant suicides. In comparison, women born in Canada made up 21.1 percent of all Canadian suicides (Trovato, 1998). Women from Hungary, the Czech and Slovak Republics, the former Soviet Union, and Asia were at higher risk for suicide than women from Portugal, Greece, and Italy, who had the lowest risk. In general, immigrants from southern Europe had lower suicide rates, while higher rates were found among immigrants from eastern and northwestern Europe — rates in keeping with those in their country of origin.

Trovato (1998) also determined that the more cohesive an immigrant group is, the lower its rate of suicide. Although more study is needed, these results suggest that some immigrant women are at elevated risk for suicide. Older studies of suicide in Canada and the United States suggest that there is convergence of the suicide rate among immigrants to the rate of those in the adopted country (Kliewer, 1991; Kliewer & Ward, 1988). No data are available to determine the risk of suicide attempts in immigrant women compared to Canadian-born women.

LESBIANS AND GAYS

The risk of suicidal behaviour in lesbian, gay, and bisexual youth is elevated, perhaps as much as eight times, over their heterosexual controls (Bagley & Tremblay, 2000; McDaniel, Purcell, & D'Augelli, 2001), and this elevated risk was more apparent for men than for women. A study of lesbian, gay, and bisexual adolescents found that male and female bisexual/homosexual students were more likely to report suicide attempts, suicide ideation, and suicide intent (Remafedi, French, Story, Resnick, & Blum, 1998). Little evidence is available about whether lesbian, gay, and bisexual individuals are at increased risk for completed suicide. Two community surveys did not find an increased risk for suicides compared to the general population (McDaniel et al., 2001). The risk for suicidal behaviour may be partly explained by the exposure of lesbian, gay, and bisexual individuals to discrimination and victimization.

ABORIGINAL POPULATIONS

Few data on suicidal behaviour are available for Aboriginal Canadian women. In general, Native people's rates of suicide are at least 50 percent higher than those for the general population, and this rate is particularly evident among Native youth (Middlebrook, LeMaster, Beals, Novins, & Manson, 2001). Suicide rates in the Native population are found to be highly variable from one community to the next. Youth suicide in Native populations is sometimes characterized by cluster suicides, although cluster suicides are also found in non-Native populations.

For Inuit women, persons aged 15 to 24 were 18 times more likely to have attempted suicide than those over 44 years of age. Boyer et al. (1998) found that young Inuit women were a particularly high-risk group for suicidal ideation and behaviour.

EXPLANATIONS FOR THE GENDER PARADOX IN SUICIDE

The "gender paradox" in suicide refers to the observation in most countries that women are at greater risk for suicide ideation and attempts, yet men are more likely to complete suicide (Canetto & Sakinofsky, 1998). Gender differences in suicides and suicide attempts may result from the choice of suicide method. This explanation implies that men and women have equal likelihood of committing suicidal acts and equal intent to die. However, men are more likely to choose lethal means and to demonstrate a greater mortality from suicidal behaviour. The explanation does not account for the variation in intent found in suicidal individuals, nor does it clarify why men choose more lethal means.

Gender differences in suicidal behaviour may result because women are better at self-reporting their medical histories than are men. The explanation does not elucidate why men have higher rates of suicide, and it serves only to explain the higher prevalence of suicide attempts found for women.

Differential rates of depression and alcohol abuse and differences in psychiatric disorders found in men and in women might explain differences in suicide behaviour. Women are more likely to suffer from depression, while men demonstrate higher rates of alcoholism and alcohol abuse. The higher rates of depression in women might explain the higher rates of suicide attempts found in women than in men, but do not explain why there are higher completion rates for men.

In Western societies, cultural expectations about gender and self-destructive behaviours view suicide as masculine behaviour, while attempting suicide is regarded as feminine (Canetto & Sakinofsky, 1998). Men and women adopt self destructive behaviours that are congruent with the cultural gender scripts. For example, adolescent beliefs and attitudes might consider a suicide attempt by a troubled male adolescent as inappropriate feminine behaviour, while death by suicide will be viewed as appropriate masculine behaviour (Canetto, 1997).

Psychosocial differences suggest an explanation for the gender paradox in suicide-based behaviours (Murphy, 1998). Women are more likely to seek and receive emotional support, will more readily consider the consequences on others of their suicidal behaviours, and will be more inclusive in considering their options before acting. A suicide attempt may be more consistent with a woman's attempt to send a message to another person (Murphy, 1989). Undoubtedly, psychological and cultural explanations may explain some of the gender differences in suicide behaviours.

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CHAPTER 8 – SEXUAL ASSAULT AND INTIMATE PARTNER VIOLENCE

MARSHA M. COHEN AND DONNA ANSARA

OVERVIEW

We undertook a special analysis of the 1999 General Social Survey (GSS) on victimization (Statistics Canada, 2000) to obtain prevalence and incidence data on spousal violence and sexual assaults for the province of Ontario. Results for Ontario are compared to those for Canada. For Ontario, 7.4 percent of women aged 15 years and over experienced at least one episode of violence by a current or a former partner in the previous five years. Twenty percent of respondents reported severe violence by a previous spouse, compared to 1.2 percent of respondents by a current spouse. Among women reporting violence, 44 percent had a physical injury and 39 percent feared for their lives.

In the GSS survey for Ontario women, individuals at highest risk were urban women, younger women (aged 15 to 24 years), Aboriginal women, women with activity limitations, and single parents with children under 25. Lifetime sexual assault was reported by ten percent of Ontario female respondents to the GSS.

Research evidence shows that women exposed to violence are more likely to suffer from higher rates of eating disorders, substance abuse, gynaecological health problems, multiple injuries, chronic pain, poor obstetrical outcomes, suicide, and depression. Thus, exposure to violence, whether as a child or an adult, places women at higher risk of poor health outcomes, both physical and mental. These women tend to show higher usage of the health-care system and poorer social functioning. Estimates for the cost of the medical treatment of abused women range from $408 million to $1.5 billion, and the hospital costs from $37 million to $70 million.

There needs to be more recognition of the health effects of violence against women. Provincial ministries, local municipalities, hospitals, health professionals, and community groups need to work together to identify the best role for the health sector. These groups also need to coordinate with other sectors, such as housing, justice, and social services. Most important, there needs to be a change in societal perception and tolerance of violence to women.

INTRODUCTION

The United Nations definition of gender-based violence includes any act "that results in, or is likely to result in, physical sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivations of liberty, whether occurring in public or private life" (Fischbach & Herbert, 1997). Domestic violence is common and has been documented in every culture in which it has been studied (Fischbach & Herbert, 1997).

This report will first outline briefly some of the literature on the prevalence of sexual assault and intimate partner violence from Canadian and international sources. Second, it will present a reanalysis of the General Social Survey of 1999 on victimization, comparing Ontario female respondents with those from Canada as a whole.

BACKGROUND

INTERPRETIVE CAUTIONS

The rate of violence found in different studies will vary owing to methodological differences. The methods by which sexual assault or intimate partner violence are defined (e.g., what types of abuses are asked about) may vary. The way the questions are posed, who asks them (e.g., health-care professionals, researchers, community workers, etc.), and how they are asked (e.g., by telephone, mailed survey, or face-to-face interviews) will also contribute to variations. Other differences may be due to the characteristics of the women studied (e.g., high or low income), the use of single versus multiple interviewers asking the questions, and whether women were questioned about current or past abuse. Although it is well known that women are more likely to be sexually and physically abused by their intimate partner, or someone they know, this report will not be discussing this issue.

PREVALENCE OF VIOLENCE AGAINST WOMEN

Canada

In Canada, two national surveys of violence against women have been carried out, along with a small number of local or regional studies (Exhibit 8-1).

In 1993 a Statistics Canada telephone survey of 12,300 women over the age of 18 years found that, in the previous 12 months, ten percent had experienced violence and 51 percent had experienced physical or sexual assault since the age of 16 (Johnson, 1996). The highest reports of violence were from women aged 18 to 24 years who had low household income (where the rates were also high in women aged 25 to 34), those having some postsecondary education, and those living in urban centres. Abuse from husbands or common-law partners was reported by 25 percent of respondents reporting abuse. Of women abused by the current or the past spouse, 21 percent reported more than ten incidents. Thirty-five percent of women reported partner-related emotional abuse (Johnson, 1996).

A study from Winnipeg found that, among 843 women attending an inner-city health clinic (43.6 percent of whom were Aboriginal), the rate of abuse (mainly childhood sexual abuse) was 36.5 percent (Young & Katz, 1998). A history of "severe" childhood sexual abuse or physical abuse was reported by 15.9 percent of women responding to the Ontario Health Supplement of the Ontario Health Survey (MacMillan et al., 1997).

Randall and Haskell (1995) carried out a study of 4,260 women aged 18 to 64 years living in Toronto. They found that 97 percent of the women interviewed had been exposed to at least one "sexual violation" (defined as being personally affected by an unwanted experience of sexual harassment, intrusion, or sexual assault) and 9.3 percent to at least one episode of severe abuse. A province-wide survey in Alberta of men and women aged 18 years and over reported a rate of violence against women of 11.2 percent (Kennedy & Dutton, 1989).

Two studies examined violence during pregnancy. A study in Saskatoon of 543 women receiving public prenatal services found that 8.5 percent reported physical abuse during the pregnancy (Muhajarine & D'Arcy, 1999). Stewart and Cecutti (1993) recruited 548 women in Toronto from prenatal clinics and doctors' offices and found that 6.6 percent reported physical abuse during pregnancy. Of these women, 86.1 percent were also psychologically or verbally abused and had been abused before the pregnancy.

Exhibit 8-1. Prevalence of Violence Against Women: Canada and Developed Countries

Location	Source	Sample	Rates
Canadian			
Canada	VAW survey, Statistics Canada, 1993	Random sample of 12,300 women, aged 18 years and over	10% violence in last 12 months 51% physical/sexual assault since age 16 29% of ever-married assaulted by current or previous partner
Toronto	Randall & Haskell, 1995	Random sample of 420 women living in Toronto aged 18–64 yrs	9.3% reported at least one incidence of childhood sexual abuse and adult sexual or physical abuse in intimate relationship
Ontario	MacMillan et al., 1997	Ontario Mental Health Supplement to Ontario Health Survey, 1990; 9,953 persons aged 15+	15.9% of women reported severe childhood sexual or physical assault
Alberta	Kennedy & Dutton, 1989	Provincial survey of 1,045 persons aged 18+ years	11.2% report "violence against women"
Winnipeg	Young & Katz, 1998	843 women attending inner-city health clinic (44% Aboriginal)	36.5% reported abuse, mainly childhood sexual abuse
Saskatoon	Muhajarine & D'Arcy, 1999	543 women attending public prenatal services	8.5% reported physical assault during pregnancy
Toronto	Stewart & Cecutti, 1993	548 women attending prenatal clinic and doctors' offices	6.6% reported physical assault during pregnancy
International			
Sweden	Spak et al., 1998	316 women, Goteborg, aged 25–65 years	13.9% reported lifetime sexual abuse 9.8% reported childhood sexual abuse
Sweden	Krantz & Ostegren, 2000	397 women aged 40–50 years in rural Sweden	32.2% reported childhood sexual or physical abuse; 15.6% adult abuse
Sweden	Risberg et al., 1999	251 women in primary care district	14% reported "abuse"; 7.5% adult sexual abuse, 7.0% childhood sexual abuse
United Kingdom	Mirrlees-Black & Byron, 1996	British Crime Survey of persons aged 16–59 years, n=10 844	23% of women physically assaulted by current or former partner
United Kingdom	Painter & Farrington, 1998	National survey of 1,007 women	28% hit by husband 22% raped inside or outside of marriage
USA	Vogeltanz et al., 1999	National sample of women 18+ yrs	15–26% reported childhood sexual abuse
USA	Silverman et al., 2001	1999 Youth Risk Behaviour Survey of US high schools. n= 4415 students	18.0% of female public high school students experienced physical or sexual violence 8.9% reported physical assault by a date 3.8% reported being sexually assaulted by a date 5.3% reported physical and sexual dating violence
USA	Dietz et al., 1998		50% of postpartum deaths were homicides
Developed countries	Gazamarian et al., 1996	Review of 13 studies 1963 to 1995 on prevalence of violence against pregnant women	Rate of violence during pregnancy ranged from 0.9 to 20.1%; in the majority of studies, rates ranged from 3.9% to 8.3%
USA	Bureau of Justice Statistics, 2000	National Crime Victimization Survey, 1999–2000	Rape/sexual assault rate for women: 3.0 victims per 1,000 women aged 12+ years

International

Owing to methodological and population differences noted above, it is difficult to make direct comparisons of rates of violence between Canada and other developed countries. A sample of studies summarized in Exhibit 8-1 from Sweden, the United Kingdom, and the United States shows that violence to women is common

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International

Owing to methodological and population differences (noted above), it is difficult to make direct comparisons of rates of violence between Canada and other developed countries. A sample of studies summarized in Exhibit 8-1 from Sweden, the United Kingdom, and the United States shows that violence to women is common.

Gender differences

Surveys of co-habitating couples (married and non-married) have utilized questions from a widely used violence questionnaire known as the Conflict Tactics Scale (Straus, 1989). These surveys ask if one's partner has ever thrown something, pushed, grabbed or shoved, slapped, kicked, bit or hit, beat up, choked, burned, forced sex, and threatened or used a gun or a knife. The studies have shown that "any" violence occurs about equally between men and women, but the pattern of violence differs between men and women. It is important to consider the context of the violence. Owing to the generally smaller body size, women are more likely to be injured than men. Women may also resort to violence in self-defence.

In a random sample of US couples (Schafer, Caetano, & Clark, 1998), men-to-women violence occurred in about 9.25 percent of these couples; women-to-men violence occurred in about 11 percent of couples. However, women were twice as likely to be beaten up, choked, or forced to have sex; women were about six times more likely to be burned or scalded and eight times more likely to have a gun or knife used on them. Men were more likely to have been slapped, pushed, kicked, or hit.

In a recent Canadian survey using very similar questions (Canadian Centre for Justice Statistics, 2000), about eight percent of men and seven percent of women experienced "any" violence in the previous five years. Again, women were more likely to be subjected to more severe forms of violence. Women were more than twice as likely as men to report being beaten than men (25 percent vs. ten percent), and almost twice as likely to have had a gun or a knife used (13 percent vs. seven percent) against them.

The US Bureau of Justice Statistics reports that, in 1998, there were 876,340 rape, sexual assault, robbery, aggravated assault, and simple assault from an intimate to women crimes, compared to 160,000 violent crimes by an intimate for men. The report concluded that "intimate violence is primarily a crime against women in 1998, females were the victims in 72 percent of intimate murders and the victims of about 85 percent of non-lethal intimate violence" (Bureau of Justice Statistics). The rate of violent crime and personal theft per 1,000 persons aged 12 or over included rape/sexual assault: the rate for males was 0.1 percent and for females, 2.1 percent.

A similar picture can be seen for Britain. The 1996 British Crime Survey included a random sample of 10,844 persons aged 16 to 59 years. It found that 23 percent of women and 15 percent of men claimed they had been physically assaulted by a current or a former partner at some time in their life. Women were twice as likely to be injured by the assault as men (2.2 percent of women vs. 1.1 percent of men).

METHODS

We undertook a special analysis of the 1999 General Social Survey (GSS) on victimization (Statistics Canada, 2000) to obtain prevalence and incidence data on spousal violence and sexual assaults for the province of Ontario. Results for Ontario are compared to those for Canada. Details on the GSS and the methods used are found in the appendix.

FINDINGS

Overall, the rate of "any" violence in Ontario (7.4%) was somewhat less than that for Canada (8.7%) (Exhibit 8-2). When considering the type of violence, non-severe violence was found more often than severe violence. About two percent of Ontario women claimed they were kicked, bit or hit, beaten or choked. About one percent had a gun or a knife used or threatened against them, and 1.4 percent had experienced sexual assault by a current or a former partner in the previous five years.

Exhibit 8-2. Number and Percent of Women Aged 15 and Over and Experiencing Violence by Current or Previous Spouse* by Type of Violence in Past Five Years: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe				
Threatened to hit	145	(5.0)	449	(5.7)
Threw something	95	(3.3)	301	(3.8)
Pushed, grabbed, shoved	183	(6.3)	561	(7.1)
Slapped	94	(3.3)	276	(3.5)
Severe				
Kicked, bit, or hit	76	(2.6)	227	(2.9)
Hit with something	58	(2.0)	155	(2.0)
Beat	56	(2.0)†	172	(2.2)
Choked	43	(1.5)†	139	(1.8)
Used or threatened to use gun or knife	25	(0.9)†	91	(1.2)
Sexual assault	41	(1.4)†	138	(1.7)
Any violence	212	(7.4)	690	(8.7)

Data source: Statistics Canada, General Social Survey, 1999

* *Includes common-law partners*

† *Coefficient of variation is high (16.6% to 33.3%)*

Exhibit 8-3a. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current Spouse in Past Five Years by Severity of Violence: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe	83	(3.2)	251	(3.6)
Severe	30	(1.2)†	86	(1.2)

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

Exhibit 8-3b. Number and Percent of Women Aged 15 and Over Experiencing Violence by Previous Spouse* in Past Five Years by Severity of Violence: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe	128	(27.3)	428	(27.9)
Severe	93	(19.7)	295	(19.2)

Data source: Statistics Canada, General Social Survey, 1999

* *Includes women who are legally married but separated from their spouse*

Violence by a current partner was found to be less than that reported by women about a former partner (Exhibits 8-3a and 8-3b). About 2.4 percent of Ontario women reported being exposed to violence at least one time, and about four percent of women reported a violent episode two or more times in the previous five years (Exhibit 8-4).

Among Ontario women who reported at least one violent incident, 44.4 percent of them told of a physical injury as a result of the abuse (Exhibit 8-5); 16.7 percent received medical attention because of the abuse and 39.4 percent claimed they had feared for their lives after the abuse.

URBAN/RURAL WOMEN

Urban women in Ontario and Canada reported higher rates of abuse than rural women. This increase was seen for both non-severe and severe abuse (Exhibit 8-6).

Exhibit 8-4. **Frequency of Violent Incidents by Current or Previous Spouse for Women Aged 15 Years and Over in the Past Five Years: Ontario and Canada**

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
None	2,666	(92.6)	7,234	(91.3)
One	68	(2.4)	225	(2.8)
2-5 times	56	(1.9)†	197	(2.5)
6-10 times	19	(0.7)†	72	(0.9)
More than 10	61	(2.1)	178	(2.2)
Not stated/Don't know	–	–	17	(0.2)†

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

Amount too small to be expressed

Exhibit 8-5. **Number and Proportion of Women Reporting at Least One Violent Incident in the Past Five Years Who had a Physical Injury, Received Medical Attention, or Feared for Their Lives as a Result of the Violent Incident: Ontario and Canada**

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Physical injury	91	(44.4)	279	(41.3)
No physical injury	114	(55.6)	396	(58.7)
Received medical attention	34	(16.7)†	104	(15.5)
Did not receive medical attention	56	(27.5)	174	(25.8)
No physical injury	114	(55.8)	396	(58.8)
Feared for their life	81	(39.4)	259	(38.4)
Did not fear for their life	124	(60.6)	414	(61.6)

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

Exhibit 8-6. **Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence by Urban/Rural Residence: Ontario and Canada**

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe				
Urban	178	(7.6)	532	(8.7)
Rural*	33	(6.0)†	141	(7.5)
Severe				
Urban	103	(4.4)	303	(5.0)
Rural*	21	(3.8)†	76	(4.1)

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

* *Includes rural areas and Prince Edward Island*

FINDINGS

Overall, the rate of "any" violence in Ontario (7.4%) was somewhat less than that for Canada (8.7%) (Exhibit 8-2). When considering the type of violence, non-severe violence was found more often than severe violence. About two percent of Ontario women claimed they were kicked, bit or hit, beaten or choked. About one percent had a gun or a knife used or threatened against them, and 1.4 percent had experienced sexual assault by a current or a former partner in the previous five years.

Violence by a current partner was found to be less than that reported by women about a former partner (Exhibits 8-3a and 8-3b). About 2.4 percent of Ontario women reported being exposed to violence at least one time, and about four percent of women reported a violent episode two or more times in the previous five years (Exhibit 8-4).

Among Ontario women who reported at least one violent incident, 44.4 percent of them told of a physical injury as a result of the abuse (Exhibit 8-5); 16.7 percent received medical attention because of the abuse and 39.4 percent claimed they had feared for their lives after the abuse.

URBAN/RURAL WOMEN

Urban women in Ontario and Canada reported higher rates of abuse than rural women. This increase was seen for both non-severe and severe abuse (Exhibit 8-6).

Exhibit 8-2. Number and Percent of Women Aged 15 and Over and Experiencing Violence by Current or Previous Spouse* by Type of Violence in Past Five Years: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe				
Threatened to hit	145	(5.0)	449	(5.7)
Threw something	95	(3.3)	301	(3.8)
Pushed, grabbed, shoved	183	(6.3)	561	(7.1)
Slapped	94	(3.3)	276	(3.5)
Severe				
Kicked, bit, or hit	76	(2.6)	227	(2.9)
Hit with something	58	(2.0)	155	(2.0)
Beat	56	(2.0)[†]	172	(2.2)
Choked	43	(1.5)[†]	139	(1.8)
Used or threatened to use gun or knife	25	(0.9)[†]	91	(1.2)
Sexual assault	41	(1.4)[†]	138	(1.7)
Any violence	212	(7.4)	690	(8.7)

Data source: Statistics Canada, General Social Survey, 1999

* *Includes common law partners*

[†] *Coefficient of variation is high (16.6% to 33.3%)*

Exhibit 8-3a. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current Spouse in Past Five Years by Severity of Violence: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe	83	(3.2)	251	(3.6)
Severe	30	(1.2)[†]	86	(1.2)

Data source: Statistics Canada, General Social Survey, 1999

[†] *Coefficient of variation is high (16.6% to 33.3%)*

Exhibit 8-3b. Number and Percent of Women Aged 15 and Over Experiencing Violence by Previous Spouse* in Past Five Years by Severity of Violence: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe	128	(27.3)	428	(27.9)
Severe	93	(19.7)	295	(19.2)

Data source: Statistics Canada, General Social Survey, 1999

* *Includes women who are legally married but separated from their spouse*

Exhibit 8-4. Frequency of Violent Incidents by Current or Previous Spouse for Women Aged 15 Years and Over in the Past Five Years: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
None	2,666	(92.6)	7,234	(91.3)
One	68	(2.4)	225	(2.8)
2-5 times	56	(1.9)†	197	(2.5)
6-10 times	19	(0.7)†	72	(0.9)
More than 10	61	(2.1)	178	(2.2)
Not stated/Don't know	–	...	17	(0.2)†

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

... *Amount too small to be expressed*

Exhibit 8-5. Number and Proportion of Women Reporting at Least One Violent Incident in the Past Five Years Who had a Physical Injury, Received Medical Attention, or Feared for Their Lives as a Result of the Violent Incident: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Physical injury	91	(44.4)	279	(41.3)
No physical injury	114	(55.6)	396	(58.7)
Received medical attention	34	(16.7)†	104	(15.5)
Did not receive medical attention	56	(27.5)	174	(25.8)
No physical injury	114	(55.8)	396	(58.8)
Feared for their life	81	(39.4)	259	(38.4)
Did not fear for their life	124	(60.6)	414	(61.6)

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

Exhibit 8-6. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence by Urban/Rural Residence: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe				
Urban	178	(7.6)	532	(8.7)
Rural*	33	(6.0)†	141	(7.5)
Severe				
Urban	103	(4.4)	303	(5.0)
Rural*	21	(3.8)†	76	(4.1)

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

* *Includes rural areas and Prince Edward Island*

Exhibit 8-7. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence and by Age Group: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non severe				
15–24	18	(20.3)†	92	(24.1)
25–34	85	(13.5)	245	(14.5)
35–44	70	(8.6)	215	(9.8)
45–54	24	(3.9)†	90	(5.3)
55+	14	(1.8)† *	30	(1.5)†
Severe				
15–24	9	(9.5)‡ *	46	(11.9)
25–34	54	(8.6)	134	(8.0)
35–44	44	(5.5)†	130	(5.9)
45–54	9	(1.5)‡ *	48	(2.8)
55+	7	(0.9)‡ *	22	(1.1)†

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

* *Number of women respondents in this group is less than 15*

‡ *Coefficient of variation is very high (33.4% and over)*

Exhibit 8-8. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence and Visible Minority Status: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe				
Visible minority	25	(7.1)†	51	(7.9)
Non-visible minority	181	(7.2)	607	(8.4)
Severe				
Visible minority	13	(3.7)‡	26	(4.0)†
Non-visible minority	109	(4.3)	345	(4.8)

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

‡ *Coefficient of variation is very high (33.4% and over)*

Exhibit 8-9. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence and by Aboriginal Status: Canada

	Canada	
Type of Violence	No. (000s)	%
Non-severe		
Aboriginal	44	(25.5)
Non-Aboriginal	615	(8.0)
Severe		
Aboriginal	30	(17.4)†
Non-Aboriginal	343	(4.4)

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

AGE

The percentage of women in Ontario or Canada experiencing violence declined with increasing age (Exhibit 8-7). Younger women aged 15 to 24 years experienced the highest rate of violence from a partner (20.3% non-severe; 9.5% severe). Women aged over 55 years had much lower rates of intimate partner violence, whether severe or non-severe.

VISIBLE MINORITY STATUS

The rate of partner-related violence among women of self-reported visible minority status is set out in Exhibit 8-8. There did not appear to be any difference in the percentage of women claiming visible minority status and other women who reported severe or non-severe violence.

ABORIGINAL STATUS

The General Social Survey of 1999 did not include a sufficient number of Ontario Aboriginal women to allow a valid analysis. For Canada, the rate of violence for Aboriginal women was higher both for severe and for non-severe violence. For example, for non-severe violence, 25.5 percent of the Aboriginal women in the survey reported violence, compared to 8.0 percent among non-Aboriginal women (Exhibit 8-9).

PLACE OF BIRTH

In the survey, since there were only small numbers of women from any one country other than Canada, respondents were grouped into those born in Canada and those not born in Canada. Women born in Canada exhibited higher rates of intimate partner violence than those not born in Canada (Exhibit 8-10), both for non-severe and for severe forms of violence.

SINGLE PARENTS

This analysis (Exhibit 8-11) compared single parent families with children under 25 years of age with married parents with children under 25 years of age. The rate of intimate partner violence in the previous five years (mostly from former partners) among single mothers with children was much higher than among women who were married. This rate applies both for non-severe and for severe forms of violence.

Exhibit 8-10. **Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence and Place of Birth: Ontario and Canada**

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	
Non-severe				
Born in Canada	152	(7.7)	562	(8.8)
Not born in Canada	53	(5.9)*	96	(6.2)
Severe				
Born in Canada	89	(4.5)	319	(5.0)
Not born in Canada	32	(3.6)*	52	(3.4)

Data source: Statistics Canada General Social Survey, 1999

* *Coefficient of variation is high (16.6% to 33.3%)*

Exhibit 8-11. **Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Seve:ity of Violence and Marital Status: Ontario and Canada**

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	
Non-severe				
Single parent with children < 25 yrs	66	(39.9)	179	(38.5)
Married with children < 25 yrs	65	(5.2)	219	(6.4)
Severe				
Single parent with children < 25 yrs	48	(29.1)	131	(28.3)
Married with children < 25 yrs	29	(2.3)*	97	(2.8)

Data source: Statistics Canada General Social Survey, 1999

* *Coefficient of variation is high (16.6% to 33.3%)*

Exhibit 8-7. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence and by Age Group: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe				
15–24	18	(20.3)†	92	(24.1)
25–34	85	(13.5)	245	(14.5)
35–44	70	(8.6)	215	(9.8)
45–54	24	(3.9)†	90	(5.3)
55+	14	(1.8)† *	30	(1.5)†
Severe				
15–24	9	(9.5)‡ *	46	(11.9)
25–34	54	(8.6)	134	(8.0)
35–44	44	(5.5)†	130	(5.9)
45–54	9	(1.5)‡ *	48	(2.8)
55+	7	(0.9)‡ *	22	(1.1) †

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

* *Number of women respondents in this group is less than 15*

‡ *Coefficient of variation is very high (33.4% and over)*

Exhibit 8-8. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence and Visible Minority Status: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe				
Visible minority	25	(7.1)†	51	(7.9)
Non-visible minority	181	(7.2)	607	(8.4)
Severe				
Visible minority	13	(3.7)‡	26	(4.0)†
Non-visible minority	109	(4.3)	345	(4.8)

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

‡ *Coefficient of variation is very high (33.4% and over)*

Exhibit 8-9. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence and by Aboriginal Status: Canada

	Canada	
Type of Violence	No. (000s)	%
Non-severe		
Aboriginal	44	(25.5)
Non-Aboriginal	615	(8.0)
Severe		
Aboriginal	30	(17.4)†
Non-Aboriginal	343	(4.4)

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

AGE

The percentage of women in Ontario or Canada experiencing violence declined with increasing age (Exhibit 8-7). Younger women aged 15 to 24 years experienced the highest rate of violence from a partner (20.3% non-severe; 9.5% severe). Women aged over 55 years had much lower rates of intimate partner violence, whether severe or non-severe.

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The rate of partner-related violence among women of self-reported visible minority status is set out in Exhibit 8-8. There did not appear to be any difference in the percentage of women claiming visible minority status and other women who reported severe or non-severe violence.

ABORIGINAL STATUS

The General Social Survey of 1999 did not include a sufficient number of Ontario Aboriginal women to allow a valid analysis. For Canada, the rate of violence for Aboriginal women was higher both for severe and for non-severe violence. For example, for non-severe violence, 25.5 percent of the Aboriginal women in the survey reported violence, compared to 8.0 percent among non-Aboriginal women (Exhibit 8-9).

PLACE OF BIRTH

In the survey, since there were only small numbers of women from any one country other than Canada, respondents were grouped into those born in Canada and those not born in Canada. Women born in Canada exhibited higher rates of intimate partner violence than those not born in Canada (Exhibit 8-10), both for non-severe and for severe forms of violence.

SINGLE PARENTS

This analysis (Exhibit 8-11) compared single parent families with children under 25 years of age with married parents with children under 25 years of age. The rate of intimate partner violence in the previous five years (mostly from former partners) among single mothers with children was much higher than among women who were married. This rate applies both for non-severe and for severe forms of violence.

Exhibit 8-10. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence and Place of Birth: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe				
Born in Canada	152	(7.7)	562	(8.8)
Not born in Canada	53	(5.9)†	96	(6.2)
Severe				
Born in Canada	89	(4.5)	319	(5.0)
Not born in Canada	32	(3.6)†	52	(3.4)

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

Exhibit 8-11. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence and Marital Status: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe				
Single parent with children < 25 yrs	66	(39.9)	179	(38.5)
Married with children < 25 yrs	65	(5.2)	219	(6.4)
Severe				
Single parent with children < 25 yrs	48	(29.1)	131	(28.3)
Married with children < 25 yrs	29	(2.3)†	97	(2.8)

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

ACTIVITY LIMITATION

The only questions relating to disability in the survey were those asking about activity limitation. Among those claiming that their activity limitation occurred sometimes or often, 10.6 percent of the Ontario women were subjected to non-severe intimate partner violence, compared to 6.6 percent of those who had no activity limitation (Exhibit 8-12). Those with activity limitation also experienced higher rates of severe violence than those who did not have any activity limitation.

Exhibit 8-12. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence and Presence or Absence of Activity Limitation: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe				
Activity limitation (sometimes/often)	52	(10.6)†	154	(11.6)
No activity limitation	153	(6.6)	501	(7.7)
Severe				
Activity limitation (sometimes/often)	38	(7.8)†	105	(7.9)
No activity limitation	82	(3.5)	264	(4.1)

Data source: Statistics Canada, General Social Survey, 1999

† Coefficient of variation is high (16.6% to 33.3%)

SEXUAL ASSAULT (NON-PARTNER)

The rate of non-partner sexual assault in the past 12 months was 1.7 percent for Ontario women, a rate similar to that of 1.9 percent for Canada (Exhibit 8-13). The rate of lifetime sexual assault reported among women survey respondents was lower for Ontario (10.0%) than for Canada (11.6%) (Exhibit 8-14).

Exhibit 8-13. Number and Percent of Women Aged 15 and Over Experiencing Non-Spousal Sexual Assault* in the Past 12 Months: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
12 month prevalence of non-spousal sexual assault	77	(1.7)	230	(1.9)

Data source: Statistics Canada, General Social Survey, 1999

** Forced or attempted to force you into unwanted sexual activity by threatening you, holding you down, or hurting you in some way; also includes unwanted touching, grabbing, kissing, or fondling (includes family and non-family members)*

Exhibit 8-14. Number and Percent of Women Aged 15 and Over Experiencing Non-Spousal Sexual Assault* During Their Lifetime: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Lifetime prevalence of non-spousal sexual assault	450	(10.0)	1,370	(11.6)

Data source: Statistics Canada, General Social Survey, 1999

** Forced or attempted to force you into unwanted sexual activity by threatening you, holding you down, or hurting you in some way; also includes unwanted touching, grabbing, kissing, or fondling (includes family and non-family members)*

ACTIVITY LIMITATION

The only questions relating to disability in the survey were those asking about activity limitation. Among those claiming that their activity limitation occurred sometimes or often, 10.6 percent of the Ontario women were subjected to non-severe intimate partner violence, compared to 6.6 percent of those who had no activity limitation (Exhibit 8-12). Those with activity limitation also experienced higher rates of severe violence than those who did not have any activity limitation.

Exhibit 8-12. Number and Percent of Women Aged 15 and Over Experiencing Violence by Current or Previous Spouse in Past Five Years by Severity of Violence and Presence or Absence of Activity Limitation: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Non-severe				
Activity limitation (sometimes/often)	52	(10.6)†	154	(11.6)
No activity limitation	153	(6.6)	501	(7.7)
Severe				
Activity limitation (sometimes/often)	38	(7.8)†	105	(7.9)
No activity limitation	82	(3.5)	264	(4.1)

Data source: Statistics Canada, General Social Survey, 1999

† *Coefficient of variation is high (16.6% to 33.3%)*

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The rate of non-partner sexual assault in the past 12 months was 1.7 percent for Ontario women, a rate similar to that of 1.9 percent for Canada (Exhibit 8-13). The rate of lifetime sexual assault reported among women survey respondents was lower for Ontario (10.0%) than for Canada (11.6%). (Exhibit 8-14).

Exhibit 8-13. Number and Percent of Women Aged 15 and Over Experiencing Non-Spousal Sexual Assault* in the Past 12 Months: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
12 month prevalence of non-spousal sexual assault	77	(1.7)	230	(1.9)

Data source: Statistics Canada, General Social Survey, 1999

* *Forced or attempted to force you into unwanted sexual activity, by threatening you, holding you down, or hurting you in some way, also includes unwanted touching, grabbing, kissing, or fondling (includes family and non-family members)*

Exhibit 8-14. Number and Percent of Women Aged 15 and Over Experiencing Non-Spousal Sexual Assault* During Their Lifetime: Ontario and Canada

	Ontario		Canada	
Type of Violence	No. (000s)	%	No. (000s)	%
Lifetime prevalence of non-spousal sexual assault	450	(10.0)	1,370	(11.6)

Data source: Statistics Canada, General Social Survey, 1999

* *Forced or attempted to force you into unwanted sexual activity, by threatening you, holding you down, or hurting you in some way, also includes unwanted touching, grabbing, kissing, or fondling (includes family and non-family members)*

DISCUSSION

Our analysis of the 1999 General Social Survey provides us with the opportunity to examine rates of violence to women in Ontario. In general the rates of violence were somewhat less in Ontario than reported in Canada. However, the occurrence of violence (severe and non-severe) was high. Seven percent of Ontario women reported at least one violent episode by a current or a previous partner in the previous years. Of these women, 44.4 percent reported a physical injury as a result of the abuse, 16.7 percent sought medical attention, and 39.4 percent were in fear for their life. When weighted to the general population of Ontario women, this means that 212,000 Ontario women experienced at least one violent incident, 91,000 received a physical injury, 34,000 received medical attention, and 124,000 were in fear of their lives.

As found in other surveys, severe violence was reported less often than non-severe violence. Nonetheless, about two percent of women reported being kicked, beaten, or choked by a current or a past partner. About 1.4 percent of women who had a current or a previous spouse reported a sexual assault. Lifetime sexual assault not by a partner (but could include family members, non-family members, or strangers) was reported by ten percent of the women.

Our examination of some subpopulations revealed that urban women reported violence more frequently than their rural counterparts. This study did not examine the reasons for these differences. However, it is possible that rural women are more likely to be known in their small communities, so they may be less likely to report abuse. There tend to be fewer resources in rural areas (shelters, daycare, community counselling, etc.), factors that may make it harder to leave abusive circumstances. It may be more difficult for rural women to "name" violence.

In the GSS survey, the youngest women were subjected to the highest rate of abuse. This finding is similar to those of other surveys. The US Bureau of Justice Statistics Crime Survey found that the rate of rape sexual assaults was 7.5 per 1,000 for 12 to 15 year olds and 12.4 per 1,000 for 16 to 19 year olds, compared to 0.3 per 1,000 for women aged 65 and over. Our Ontario data did not have enough subjects in the 15 to 19 year old group who had a partner. For 15 to 24 year olds, the rate of violence by a partner was 20.3 percent. These young women have particular types of lifestyles, which may mean they are out alone more often or are living in an environment where they are more likely to be exposed to violence. Younger women tend to date young men, a group with the highest rate of violence.

Visible minority women and those not born in Canada reported lower rates of intimate partner violence. However, the number of respondents who were from different countries or regions of the world was too small to undertake any subanalyses. As well, we could not tell which respondents were refugees and which were immigrants. Women from different countries and those who are refugees may have different experiences of violence, and some may not be willing to talk about violence. Depending on the culture from which women come, their experiences of violence may be different from those of Canadian born women. Some of these women may not consider some acts to be "violent." These women may be more reluctant to acknowledge violence

As found elsewhere, rates of violence were higher for Aboriginal women than for non-Aboriginal women. To our knowledge, there have not been any national surveys looking at violence to Aboriginal women. A 1989 Ontario survey by the Ontario Native Women's Association found that eight out of ten Aboriginal women had personally experienced family violence. A Health Canada document on Aboriginal violence points out that violence is not a part of Aboriginal culture, but is related to loss of Aboriginal culture and tradition (National Clearinghouse on Family Violence, 1997).

In this study, women who were single parents with children under 25 years of age reported some of the highest rates of violence from a current or a former partner. This result would suggest that single women with children who have a former partner were at very high risk of violence. Our study does not allow us to determine if violence was a cause for the separation, but, given the high rates of violence among single mothers reporting violence from a former spouse, we can infer that violence may have been part of the reason for separation or divorce.

HEALTH CONSEQUENCES AND COSTS OF VIOLENCE AGAINST WOMEN

Women subject to abuse have high rates of physical and mental illnesses. In the Statistics Canada survey (1993), 45 percent of the women reporting domestic violence reported injuries and 43 percent of them received medical attention for their injuries. Women who have been abused are often forced into sex by their male partners. Women with a history of abuse have been found to have higher rates of pelvic inflammatory disease, STDs including HIV/AIDS, bladder infections, chronic pelvic pain and other genito-urinary problems (Heise, 1994), gynaecological problems (Plichta & Abraham, 1996), and higher rates of abnormal Pap tests (Young & Katz, 1998). Women subject to abuse have also been found to have higher rates of musculo-skeletal pain (Linton, Larden, & Gillow, 1996), and gastrointestinal disorders (Lesserman et al. 1996).

Physical and sexual dating violence for adolescent girls is associated with an increased risk of substance use, unhealthy weight control measure (e.g., use of laxatives, vomiting), sexual risk behaviours, pregnancy, and suicide attempts (Silverman, Raj, Mucci, & Hathaway, 2001). Early onset smoking behaviours were also associated with emotional, sexual, or physical assault (Anda, Croft, Felitt, & Nordenberg, 1999).

Women who have been physically assaulted are likely to sustain multiple injuries, including (but not limited to) bleeding, multiple bruising, damage to internal organs, injuries to the face and head, perforated ear drums, burns, acid burns, dental damage, broken bones, and injuries to breasts, abdomen, and chest (Stark, Flitcraft, & Frasier, 1979).

It is therefore not surprising that women who have experienced abuse use health services at rates higher than non-abused women. These uses include higher rates of physician visits, emergency room visits, and hospitalizations, along with poorer ratings of their health (Coker, Remsburg, & McKeown, 1998; Dearwater et al., 1998; Kernic, Wolf, & Holt, 2000; Moeller & Bachmann, 1993; Wagner & Mongan, 1998). Women who had reported rape or physical assault also reported severely decreased quality of life as well as limitations of educational and financial attainment more than a decade later (Sadler, Booth, Nielson, & Doebbeling, 2000). Even exposure to "low-severity" violence was found to be associated with physical and psychological health problems in women (McCauley, Kern, Kolodner, Derogatis, & Bass, 1998).

Health consequences include effects on pregnant women and effects on pregnancy outcomes. Injuries from abuse may be very severe and sometimes fatal. One US study found that 50 percent of postpartum deaths were homicides (Dietz, Rochat, Thompson, Berg, & Griffin, 1998). When the definition of pregnancy-related mortality is widened to include homicide, the leading cause of death from pregnancy or within one year of delivery was homicide (20 percent of pregnancy-related deaths) (Horon & Cheng, 2001).

Pregnant women who were abused are more likely to use alcohol, cigarettes, and drugs, compared to non-abused women (Amaro, Fried, Cabral, & Zuckerman, 1990; Martin, English, Clark, Cilenti, & Kupper, 1996; Stewart & Cecutti 1993), and abused women are more likely to suffer from mental disorders during pregnancy (Hillard, 1985). Pregnant women subjected to abuse often delay seeking antenatal care (Dietz et al., 1997; McFarlane, Parker, Soeken, & Bullock, 1992). As well, there have been several studies that suggest that abuse in pregnancy is a factor for poor obstetrical outcomes, such as miscarriage, neonatal deaths (Webster, Chandler, & Battistutta, 1996), and preterm labour (Berensen, Wiemann, Wilkinson, Jones, & Anderson, 1994). A recent meta-analysis of 14 studies of abuse and pregnancy outcomes found that there was an increased risk for low birth-weight infants among women who had been abused during pregnancy (Murphy, Schei, Myhr, & DuMont, 2001). Abuse is also a factor for unintended or unwanted pregnancies (Goodwin, Gazmararian, Johnson, Gilbert, & Saltzman, 2000).

The mental health consequences of abuse are significant. Fischbach & Herbert (1997) propose that "a significant portion of the mental health distress or disorder observed in women is directly related to their experiences as victims of domestic violence" and that this contribution has been ignored or dismissed in studies assessing risk factors for mental disorders. Several studies now confirm the relationship between abuse and poor mental health, especially depression (e.g., Cheasty, Clare, & Collins, 1998; Moeller & Bachmann 1993; Muellen, Romans Clarkson, Walton, & Herbison, 1988). Significant associations have been found between childhood sexual abuse and subsequent smoking, alcohol, and drug dependence (Anda et al., 1999; Molnar, Buka, & Kessler, 2001; Spak, Spak, & Allebeck, 1998). Women who had been sexually abused are also more likely to report lifetime use of prescription psychoactive drugs and illicit drugs as well as sexual dysfunction (Wilsnack, Vogeltanz, Klassen, & Harris, 1997). Women who were subjected to sexual assault had higher lifetime rates of suicide attempts and post-traumatic stress symptoms; women sexually assaulted before the age of 16 years were three to four times more likely to attempt suicide (Davidson, Hughes, George, & Blazer, 1996) and seven times more likely to have a serious suicide attempt (Statham et al., 1998).

Thus exposure to violence, whether as a child or an adult, places women at higher risk of poor health outcomes, both physical and psychological. These women show higher usage of the health-care system and poorer social functioning. These consequences have important implications for resource allocation and direction of the health-care system. It is clear that a history of violence contributes significantly to adverse health outcomes and contributes to health-care utilization. Estimates for the annual cost for medical treatment of abused women in Canada range from $408 million (Greaves, Hankivsky, & Kingston-Riechers, 1995) to $1.5 billion (Day, 1995), while inpatient hospital costs related to violence range from $37.8 million to $70.7 million (Statistics Canada, 1993).

Since most women will come into contact with the health-care sector (especially pregnant women), there is an opportunity for screening for violence by physicians and other health-care professionals. However, at this time, it is not known whether this approach should be widely adopted. While identification of violence may be beneficial, we do not know if screening places women at higher risk (when women leave a violent situation, they are at most risk). Research is needed to determine if screening by the health-care sector is warranted.

GAPS

While more research on violence against women is needed, there is a particular need for more information about the prevalence of violence among Aboriginal women, immigrant and refugee women from different populations, and lesbian women.

APPENDIX

SURVEY DESIGN

The General Social Survey, which has been conducted since 1985, is a national survey that is designed to monitor the attitudes and experiences of Canadians on a broad range of issues. The survey is administered annually, and each year it focuses on a specific topic (e.g., the family, social support, health, technology, victimization). The 1999 GSS covered a broad range of topics related to violence and victimization, including people's experiences of current or previous spousal violence, senior abuse, non-spousal sexual assaults, emotional and financial abuse, and perceptions and experiences of crime and safety.

Approximately 26,000 Canadians were interviewed between February 1999 and December 1999 using a modified version of the Conflict Tactics Scale (Straus, 1989). Respondents were women and men 15 years of age or older living in private households in the ten provinces. Excluded from the survey were those who lived full-time in institutions, those from the Yukon, Northwest Territories, and Nunavut, and those who did not have a telephone (approximately two percent of the population). The analysis for this report includes information from women only (14,269 women).

Respondents for the survey were selected using a process of Random Digit Dialling. Each province was divided into a small number of geographic areas or strata, and within each stratum each phone number had the same probability of being chosen. After a household was contacted, an individual 15 years of age or older within the household was selected at random. Interviews were conducted using computer-assisted telephone interviewing; questions were programmed into the computer and responses were entered directly into a database. The overall response rate for the survey was 81.3 percent.

The number of women surveyed for the 1999 GSS in Canada was 14,269, and the number of women surveyed in Ontario was 4,245. For this report, responses were weighted to represent the population of non-institutionalized women 15 years of age or older living in Canada or Ontario.

STATISTICAL METHOD

Using weighted data, the proportions reported in the tables reflect the number of women who endorsed an item divided by the total number of women in that category. With the exception of the data reported in Exhibit 8-4, respondents with missing data (Don't know/Not stated) are excluded from the denominator of the estimate.

The accuracy of the data was determined using approximate variance tables provided by Statistics Canada. Estimates that have a high coefficient of variation (CV) (between 16.6% and 33.3%) are indicated in the tables using the symbol †. When the CV is very high (greater than 33.3%), or when the sample size used for the estimate is less than 15 persons, Statistics Canada generally does not recommended that the data be released because of the unreliability of the estimate. However, because of the reduced sample size for some of the analyses that were conducted at the provincial level, these criteria could not always be satisfied. Estimates for which the CV exceeds 33.3 percent are indicated using the symbol ‡, and those which are based on a sample of less than 15 are indicated using the symbol *. Readers should interpret the data with these limitations in mind.

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CHAPTER 9 – BONE DENSITY TESTING

SUSAN B. JAGLAL

OVERVIEW

Osteoporosis affects approximately 1.4 million Canadians, largely postmenopausal women and the elderly. Osteoporosis-related fractures cause considerable morbidity and, consequently, enormous financial burden through use of health services, with an estimated cost of $1.3 billion dollars. Prevention of osteoporotic fractures depends on the identification of individuals at risk for fractures, followed by interventions such as modification of lifestyle factors and hormone or other drug therapy to reduce this risk. There is ongoing controversy about who should be referred for bone mineral density (BMD) testing to estimate the risk of fracture and to diagnose osteoporosis. Given the current polarization in opinion between recent changes to the OHIP Physicians' Schedule of Benefits for BMD testing and both the technology assessment and the clinical communities, the purpose of our research was to examine patterns of use of BMD testing in the province of Ontario.

Using physician claim data for BMD testing between 1992 and 2000, we examined patterns of use by time, patient characteristics, type of physician ordering the test, and county across the province. We found that, between 1992 and 2000, the annual number of BMD tests in women increased almost tenfold, from 34,611 to 313,433. The role of family physicians in managing osteoporosis has increased considerably, and the proportion of BMD tests ordered by family physicians increased from 47.4 percent in 1992 to 79.9 percent in 2000. We also determined that the rate of BMD testing now varies about 17-fold across counties in the province, compared to a 200-fold variation in 1996, indicating that the rise in utilization of the BMD test has led to a significant increase in access to and availability of the test. In October 1999 there were changes to the OHIP fee schedule regarding frequency of testing. This has had an immediate impact on utilization of BMD testing by reducing the growth in testing. There is a need to continue to monitor these patterns to determine the longer-term effects of this policy change on utilization and access to services. Therefore, primary care physicians, women, and health policy makers continue to face key decisions with regard to BMD testing.

BACKGROUND/INTRODUCTION

IMPACT OF OSTEOPOROSIS IN THE POPULATION

Osteoporosis is a disease characterized by low bone mass, leading to fragile bones and increased risk of fractures. It affects approximately 1.4 million Canadians, largely postmenopausal women and the elderly (Goeree et al., 1996). Approximately one in four women over the age of 50 have osteoporosis (Melton, 1992). These numbers are expected to rise exponentially as the population ages. Women are at particular risk for fracture, and the incidence of fracture in women is twice that in men (Jaglal, 1998). Reasons include the fact that women have lower peak bone mass than men at the time of maturity and that they experience accelerated bone loss after menopause. There is also a greater likelihood of falls among elderly women than among men. Moreover, women live significantly longer than men. Thus, women account for 75 percent of osteoporotic fractures in most Western countries (Kanis & WHO Study Group, 1994). The remaining lifetime risk of osteoporotic fracture in a 50-year-old North American woman has been estimated at 17.5 percent for the hip, 15.6 percent for the spine, and 16 percent for the wrist (Melton, 1992). In Ontario, 9,382 hip fractures and 9,653 wrist fractures were treated in the 1996 fiscal year (Jaglal, 1998).

Osteoporotic fractures result in significant morbidity and mortality. Women who have experienced osteoporotic fractures are two to six times more likely than other women to report difficulty with almost all their usual activities of daily living, including stair climbing, reaching, bending, lifting, and walking (Greendale, Barrett-Connor, Ingles, & Haile, 1995). As many as 20 percent will become functionally dependent in their ability to perform activities of daily living and require long-term nursing care (Jaglal, Sherry, & Schatzker, 1996). The estimated cost of osteoporosis in Canada is $1.3 billion dollars (Goeree et al., 1996). By the year 2010 the number of hip fractures in Ontario is expected to double from 8,490 in 1992 to 16,963 in 2010 (Jaglal, Sherry, & Schatzker, 1996). In addition to direct costs of hospitalization, indirect costs, such as to the families of affected individuals, are substantial. Prevention of osteoporotic fractures depends on the identification of individuals at risk for fractures, followed by interventions such as modification of lifestyle factors and drug therapy to reduce this risk.

After the attainment of peak bone mass at the end of puberty, bone loss in the spine of women begins at, or shortly before, menopause and possibly as early as the mid-30s in the hip. Bone mass is a major determinant of bone strength and fracture. As BMD decreases, fracture risk increases. BMD testing assesses bone loss due to osteoporosis and helps the patient and the physician to measure the risk of future fractures, determine the need for medical treatment, and monitor the success of existing treatment. However, the use of BMD testing for risk assessment remains controversial in Canada. In both Alberta and British Columbia the provincial offices of health technology assessment have concluded that BMD testing is unsuitable for screening and is not recommended for use in "well women" (Green, Bassett, Fooerster, & Kazanjian, 1997; Hailey, 1996). This decision is based on three points in particular: lack of definitive evidence that BMD testing around the time of menopause is causally related to a reduction in the incidence of osteoporotic fractures later in life; lack of standardized requirements for the content of BMD test results or required expertise of the physicians reporting these results, in addition to lack of information regarding what primary care practitioners need from a report to ensure that the test result has the desired impact on patient care; and the high cost, non-portability, and variable geographic availability of dual-energy x-ray absorptiometry (DXA), the currently accepted method for BMD measurement.

However, clinical practice guidelines published in Canada, the United States, Europe, and Australia state that the identification of those at greatest risk of osteoporosis-related fractures should be based on measurements of BMD (Anonymous, 1997; Kanis, Delmas, Burckhardt, Cooper, & Torgerson, 1997; National Osteoporosis Foundation, 1998; Osteoporosis Society of Canada, 1996). Given the current polarization in opinion between recent changes to the OHIP Physicians' Schedule of Benefits for BMD testing and the technology assessment and the clinical communities, the purpose of our research was to examine patterns of use of BMD testing in the province of Ontario. Effective October 1, 1999, low-risk patients were eligible for BMD testing once in any 24-month period. BMD testing of low-risk persons provided more frequently than once every 24 months is uninsured but may be provided at the patient's expense (OHIP Bulletin, 1999).

For the present report, we considered time trends in BMD testing, the age and sex distribution of the population receiving the test, and the type of physician ordering the test. We also provide data on BMD testing rates by county in Ontario to allow us to see those centres where women have access to these services.

METHODS

The primary data source used for this study was the Ontario Health Insurance Plan (OHIP) claims database. To obtain the age and sex of the patient for each test ordered, the OHIP file was linked, using a unique identifier, to the Registered Persons Database (RPDB) that contains these demographic data. Currently, dual-energy x-ray absorptiometry (DXA) is the accepted method by which to measure BMD for estimating fracture risk and diagnosing osteoporosis in the hip and/or spine (Australian National Council, 1997; European Foundation for Osteoporosis, 1997; National Osteoporosis Foundation, 1998; Osteoporosis Society of Canada, 1996). Prior to DXA technology, dual photon absorptiometry (DPA) was the standard. To calculate trends in BMD testing, all physician claims for BMD measurement by DPA or DXA from January 1, 1992, to December 31, 2000, were selected from the OHIP database. From this database we also categorized physicians ordering the test as family physicians, rheumatologists, obstetricians/gynecologists and other internal medicine specialists. To examine variation at the county level when calculating BMD rates, the tests ordered in a given area were counted according to the postal code of the referring physician. All rates were adjusted to the age and sex distribution of the 2000 population.

FINDINGS AND DISCUSSION

Exhibit 9-1 shows that in Ontario, between 1992 and 2000, the annual number of BMD tests in women increased almost tenfold, from 34,611 to 313,433. The rate of increase was largest between 1995 and 1996, where the number of BMD tests increased 1.6 times.

Exhibit 9-1. Number of Billings for BMD Testing among Males and Females in Ontario, 1992 to 2000

Year	Males	Females	Total
1992	2,196	34,611	36,807
1993	2,664	42,438	45,102
1994	3,168	54,350	57,518
1995	3,732	67,600	71,332
1996	5,522	109,387	114,909
1997	8,517	164,783	173,300
1998	13,416	231,306	244,731
1999	18,250	284,429	302,721
2000	21,579	313,433	335,056

Data source: OHIP January 1992–December 2000

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FINDINGS AND DISCUSSION

Exhibit 9-1 shows that in Ontario between 1992 and 2000 [illegible] BMD tests in women increased [illegible] of increase was largest between 1995 and 1996 [illegible] increased [illegible]

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1999	18,250	284,471	302,721
2000	21,579	313,477	335,056

[illegible]

Exhibit 9-2 shows that the proportion of BMD tests ordered by family physicians increased from 47.4 percent in 1992 to 79.9 percent in 2000, while the proportion ordered by specialists decreased over the same time period. For example, in 1992, rheumatologists, compared to only 2.5 percent in 2000, ordered 11.5 percent of BMD tests. Consistent with this decrease, the number of BMD tests ordered by family physicians increased 15 fold, whereas the number ordered by specialists increased approximately threefold between 1992 and 2000.

Exhibit 9-2. Number of BMD Tests and Percent Distribution of Physician Specialties Ordering Test in Ontario, 1992 to 2000

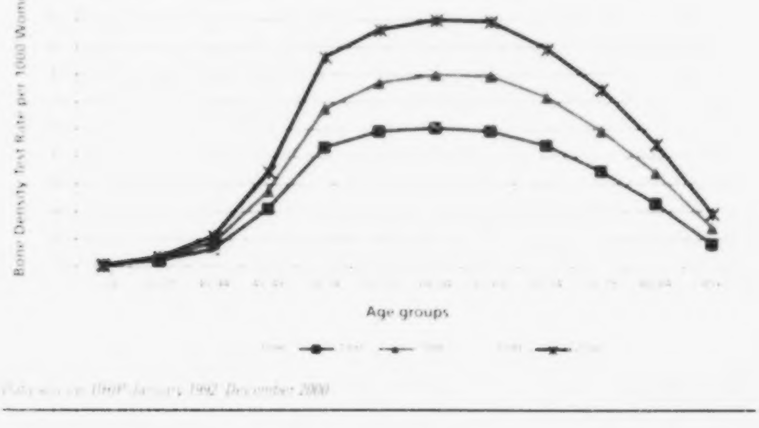
Year	Family Practice		Internal Medicine		Obstetrics / Gynaecology		Rheumatology		Other	
	No.	%	No.	%	No.	%	No.	%	No.	%
1992	17,486	47.43	8,322	22.57	3,417	9.27	4,225	11.46	3,417	9.23
1993	22,851	50.60	9,290	20.578	4,131	9.15	4,386	9.71	4,498	9.96
1994	32,263	56.05	10,613	18.44	5,737	9.97	5,176	8.99	3,776	6.56
1995	42,945	60.15	11,484	16.09	6,529	9.15	5,337	7.48	5,096	7.14
1996	79,432	69.07	14,595	12.69	7,965	6.93	6,502	5.65	6,503	5.65
1997	127,971	73.79	18,744	10.81	9,940	5.73	8,097	4.67	8,680	5.00
1998	190,161	77.65	21,607	8.82	12,733	5.20	8,951	3.66	11,444	4.67
1999	241,134	79.61	23,173	7.65	14,357	4.74	8,945	2.95	15,268	5.04
2000	267,874	79.91	23,288	6.95	14,607	4.36	8,307	2.48	21,151	6.31

Data source: OHIP January 1992–December 2000

Time trends in age-specific rates of BMD testing are illustrated in Exhibit 9-3. The highest rates are seen in women between the ages of 50 and 69 years across each of the years 1992–2000. In 1992 approximately one in 50 women aged 55 to 69 had a BMD test, compared to one in six in 2000.

Among the 49 counties of Ontario, the average age-adjusted rate of BMD testing ranged from 4.5 to 77.0 per 1,000 women in 2000 (Exhibit 9-4). The five counties with the highest rates are Hamilton-Wentworth, Toronto, Halton, Ottawa-Carleton, and Peel. The counties with the lowest rates are Sudbury and Kenora. There is about a 17-fold difference across the counties.

Exhibit 9-3. Age-/Sex-Adjusted Rates of BMD Testing



Data source: OHIP January 1992–December 2000

Exhibit 9-4. Age-Adjusted Rate of BMD Testing Rates per 1,000 Women by Location of Referring Physician's Office in Ontario, 2000

County	Age-adjusted 2000 rate
Hamilton-Wentworth Regional Municipality	77.01
Toronto Metropolitan Municipality	74.69
Halton Regional Municipality	66.55
Ottawa-Carleton Regional Municipality	58.54
Peel Regional Municipality	53.41
Brant County	53.20
Dufferin County	52.73
York Regional Municipality	49.67
Wellington County	49.58
Lambton County	48.15
Durham Regional Municipality	45.83
Bruce County	43.94
Haldimand-Norfolk Regional Municipality	43.84
Waterloo Regional Municipality	43.36
Nipissing District	42.26
Niagara Regional Municipality	42.05
Renfrew County	41.37
Simcoe County	41.04
Middlesex County	39.16
Muskoka District Municipality	35.60
Sudbury Regional Municipality	35.53
Hastings County	35.21
Victoria County	34.52
Prescott and Russell United Counties	34.16
Grey County	30.59
Lanark County	29.78
Essex County	29.54
Thunder Bay District	29.50
Haliburton County	29.46
Peterborough County	28.97
Leeds and Grenville United Counties	28.45
Frontenac County	27.16
Cochrane District	27.02
Stormont, Dundas and Glengarry United Counties	25.17
Kent County	25.17
Oxford County	24.56
Parry Sound District	23.56
Prince Edward County	22.69
Northumberland County	21.60
Elgin County	20.12
Algoma District	18.32
Huron County	16.20
Manitoulin District	15.10
Perth County	14.86
Rainy River District	13.98
Lennox and Addington County	13.52
Timiskaming District	11.51
Sudbury District	8.09
Kenora District	4.45

Data source: OHIP's claims database 1998-2000

The cost of bone densitometry has recently come under scrutiny by the Ontario Ministry of Health. Prior to October 1998, the OHIP fee was $150 for a DXA at the hip and spine, and it is now $100.05 (OHIP 1998). Analysis of utilization data in Ontario revealed that the number of BMD tests has increased steadily since 1992. This prompted a change to the OHIP Physicians Schedule of Benefits. Effective October 1, 1998, low-risk patients were eligible for BMD testing once in any 24-month period and high-risk patients were eligible at the discretion of the physician. A high-risk patient includes any person with one of the following major risk factors: premature menopause (before the age of 45 years), weight below [illegible] (125 lbs or less) [illegible] previous fragility fracture [illegible] of osteoporosis in a [illegible] exposure to high dose [illegible] longer than three months [illegible] disease [illegible] findings [illegible] patients [illegible] [illegible] BMD testing [illegible] of the [illegible] lack of [illegible] appropriate [illegible] testing [illegible] BMD [illegible] in the [illegible]

Exhibit 9-2 shows that the proportion of BMD tests ordered by family physicians increased from 47.4 percent in 1992 to 79.9 percent in 2000, while the proportion ordered by specialists decreased over the same time period. For example, in 1992, rheumatologists, compared to only 2.5 percent in 2000, ordered 11.5 percent of BMD tests. Consistent with this decrease, the number of BMD tests ordered by family physicians increased 15-fold, whereas the number ordered by specialists increased approximately threefold between 1992 and 2000.

Exhibit 9-2. Number of BMD Tests and Percent Distribution of Physician Specialties Ordering Test in Ontario, 1992 to 2000

Year	Family Practice		Internal Medicine		Obstetrics / Gynaecology		Rheumatology		Other	
	No.	%	No.	%	No.	%	No.	%	No.	%
1992	17,486	47.43	8,322	22.57	3,417	9.27	4,225	11.46	3,417	9.23
1993	22,851	50.60	9,290	20.578	4,131	9.15	4,386	9.71	4,498	9.96
1994	32,263	56.05	10,613	18.44	5,737	9.97	5,176	8.99	3,776	6.56
1995	42,945	60.15	11,484	16.09	6,529	9.15	5,337	7.48	5,096	7.14
1996	79,432	69.07	14,595	12.69	7,965	6.93	6,502	5.65	6,503	5.65
1997	127,971	73.79	18,744	10.81	9,940	5.73	8,097	4.67	8,680	5.00
1998	190,161	77.65	21,607	8.82	12,733	5.20	8,951	3.66	11,444	4.67
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Data source: OHIP January 1992–December 2000

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Among the 49 counties of Ontario, the average age-adjusted rate of BMD testing ranged from 4.5 to 77.0 per 1,000 women in 2000 (Exhibit 9-4). The five counties with the highest rates are Hamilton-Wentworth, Toronto, Halton, Ottawa-Carleton, and Peel. The counties with the lowest rates are Sudbury and Kenora. There is about a 17-fold difference across the counties.

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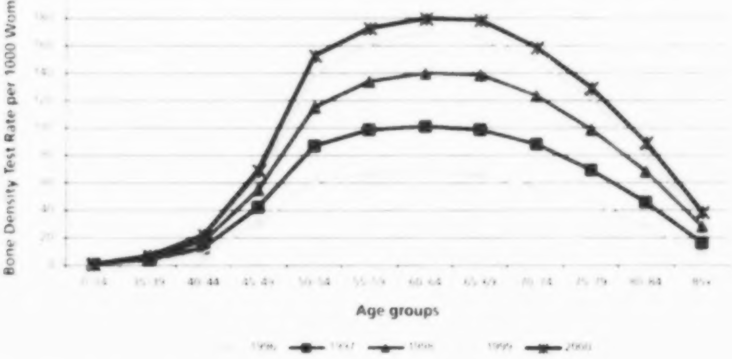

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Rainy River District	13.98
Lennox and Addington County	13.52
Timiskaming District	11.51
Sudbury District	8.09
Kenora District	4.45

Data source: OHIP claims database 1999–2000

The cost of bone densitometry has recently come under scrutiny by the Ontario Ministry of Health. Prior to October 1999, the OHIP fee was $130 for a DXA at the hip and spine, and it is now $100.68 (OHIP, 1999b). Analysis of utilization data in Ontario revealed that the number of BMD tests has increased steadily since 1992. This prompted a change to the OHIP Physicians' Schedule of Benefits. Effective October 1, 1999, low-risk patients were eligible for BMD testing once in any 24 month period, and high-risk patients were eligible at the discretion of the physician. A high risk patient includes any person with any of the following major risk factors: premature menopause, before the age of 45 years; weight below 57 kilograms (125 lbs) or body mass index less than 20; previous fragility fracture; family history of osteoporosis in a first degree relative; exposure to high-dose steroid therapy for longer than three months or Cushing's disease; longstanding malnutrition; long-standing use of anticonvulsant drugs; and primary hyperparathyroidism or cancer chemotherapy. High-risk patients also include postmenopausal women with any of the following risk factors: smoker, hyperthyroidism, low calcium intake, or excess alcohol intake. Between 1998 and 1999 the number of BMD tests ordered increased by approximately 50,000 (or 25.7%), but from 1999 to 2000 the absolute increase was 37,135 (or [illegible]). This indicates that the policy change may have decreased the rate of growth of BMD testing. It should be noted that one of the major limitations of our data is the lack of availability of information on the appropriateness of the documented BMD testing — specifically, the BMD test result or the reasons why the test was ordered.

We also determined that the rate of BMD testing varies about 17-fold across the province. We previously reported an approximately 200-fold variation, with data based on the location of the referring physician and combining the years 1996–98, with a rate of 47.1 per 1,000 in the highest-rate area and 0.2 per 1,000 in the lowest-rate area (Jaglal et al., 2000). These data suggested there was both under- and over-utilization of BMD testing (Blumenthal, 1994; Phelps & Parente, 1990): patients in low-utilization areas might be receiving too little testing, or patients in high-utilization areas might be receiving too much or inappropriate testing (Wennberg, 1982). In the case of bone densitometry, an important explanation for the large regional variation was the availability of bone densitometers. In 1995, according to estimates provided by the Osteoporosis Society of Canada, there were 95 bone densitometers in Ontario, compared to 212 in 1998 (Jaglal et al., 2000). Therefore, the increase in utilization of the BMD test has led to a significant increase in access to and availability of the test.

A number of possible factors contributed to the increasing use of BMD testing. These factors might include the increased public awareness of women's health issues, the growing number of studies in the medical literature related to osteoporosis, the increased awareness of osteoporosis among primary care physicians, the doubling of the number densitometers, changes in therapeutic options for treating low BMD, and recently published clinical practice guidelines in Canada (Osteoporosis Society of Canada, 1996) and the United States (National Osteoporosis Foundation, 1998). Perhaps the most influential of these factors has been the introduction of the bisphosphonate family of medications to the marketplace in 1995 as an alternative to hormone replacement therapy. This link is suggested by the sharp jump in BMD testing rates after 1995. Currently there are many more options for drug treatment than before, and this availability would also affect utilization. As a result, there has been increasing pressure on family physicians to routinely screen patients at risk.

Primary care physicians, women, and health policy makers continue to face key decisions regarding BMD testing. Given that there has been no reduction in utilization, we need to continue to monitor these patterns to determine the effects of the recent modification of the OHIP fee schedule for BMD testing on utilization and access to services. Also we need to determine the factors driving utilization. Future research must consider these issues before we can comment on the appropriate levels of BMD testing in the province of Ontario.

DETAILED METHODS APPENDIX

TIME TRENDS AND RATES OF BMD TESTING

Currently, dual-energy x-ray absorptiometry (DXA) is the accepted method by which to measure BMD for estimating fracture risk and diagnosing osteoporosis in the hip and/or spine. Prior to DXA technology, dual photon absorptiometry (DPA) was the standard. To calculate trends in BMD testing, all physician claims for BMD measurement by DPA or DXA from January 1, 1992, to December 31, 2000, were selected from the OHIP database using the following codes: single site J888/J688, and two or more sites J856/J656, X152, X153, J854, and J654. From this database we also categorized physicians ordering the test as family physicians, obstetricians/gynecologists, internal medicine specialists, or other radiologists. To calculate age- and sex-adjusted rates of BMD testing, the number of BMD tests was directly standardized, using the Ontario population in the year the test was ordered. This standardization was done to remove any distortion in rates introduced by the aging of the population over the time period. Population estimates used in computing rates per 1,000 persons were supplied by Statistics Canada. Estimates were obtained for each calendar year from 1992 to 2000. Data were stratified by sex and five-year age groups, with the exception of the 0–34 years age group and the 85-year-plus age group.

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CHAPTER 10 – HIP AND KNEE REPLACEMENT

JACK WILLIAMS, GILLIAN HAWKER,
DON DEBOER, AND HANS KREDER

OVERVIEW

In fiscal year 1999 there were 18,169 total joint replacements in Ontario, 8,396 total hip replacements, and 9,773 total knee replacements. The majority of total hip and knee replacements are due to osteoarthritis, one of the leading causes of long-term disability, and the prevalence rates are higher for women than for men. The rates for total joint arthroplasty are increasing over time in Ontario, more so for total knee arthroplasty than for total hip arthroplasty. The rates of total joint arthroplasty increase with age and are higher for women than for men. At the same time, the waiting times for hip and knee arthroplasty are increasing in length, even as the numbers of procedures increase.

Community surveys show that men and women bear and tolerate the burden of pain and disability due to osteoarthritis even if they know the benefits to total joint arthroplasty. Women suffer more from unmet needs, yet are equally as willing as men to have surgery.

Through its priority program for total joint arthroplasty, the Ministry of Health and Long-Term Care is working with hospitals and orthopedic surgeons of Ontario to address the dual challenges of increasing the number of procedures performed and reducing the waiting lists and waiting times. The more difficult challenges are to reduce the burden of pain and disability from osteoarthritis that could be alleviated by total joint arthroplasty and to reduce gender differences in unmet need for surgery.

BACKGROUND/INTRODUCTION

Osteoarthritis is the most common form of arthritis (Kelsey & Hochberg, 1980; La Plante, 1988; Miles, Flagal, & Harris, 1992). Typically it destroys the articular cartilage and the underlying bone of the hips, knees, spine, and small joints of the hands and feet. Osteoarthritis is the leading cause of long-term disability (Badley, Rasooly, & Webster, 1995; Badley, Rasooly, & Webster, 1994; Hadler, 1985; Kramer, Yelin, & Epstein, 1983), and the prevalence rates are higher for women than for men.

Total joint arthroplasty is a well-recognized, cost-effective treatment for advanced hip and knee arthritis, and the majority of hip and knee replacements are performed for osteoarthritis (Boettcher, 1992; Bunker, Frazier, & Mosteller, 1994; Chang, Pellissier, & Hazen, 1996; Garellick et al., 1998; Laupacis et al., 1994; Lavernia, Guzman, & Gachupin-Garcia, 1997; Levy, Levy, Snyder, & Digiovanni, 1995; Liang et al., 1984). Total joint arthroplasty of hips and knees are among the most commonly performed surgical procedures in Ontario. In fiscal year 1999 there were 18,169 total joint replacements, 8,396 total hip replacements, and 9,773 total knee replacements. Women received 60 percent of the procedures for total hip arthroplasty and total knee arthroplasty.

The total joint arthroplasty rates in Ontario are increasing over time (Cohen, DeBoer, & Young, 1994a; Cohen, DeBoer, & Young, 1994b; DeBoer & Williams, 1998a; DeBoer & Williams, 1998b; Naylor & DeBoer, 1996). Age-standardized rates were higher for total knee arthroplasty than the rates for total hip arthroplasty

The rates of total joint arthroplasty increase with age and are higher for women than for men. At the same time, the waiting times for hip and knee arthroplasty are increasing in length, even as the numbers of procedures increase (Axcell, DeBoer, Kreder, & Williams, 1998).

The purpose of this paper is to examine gender differences in uses of total joint arthroplasty and in waiting times in Ontario, after adjusting for differences in age. We draw on the research of Hawker and colleagues to relate the differences between men and women in the rate of use of hip and knee arthroplasty to underlying differences in need and demand (Hawker et al., 2000; Hawker et al., 2001; Hawker et al., in press).

METHODS

The data for this chapter come from the inpatient hospital discharge abstract data, provided by the Canadian Institute for Health Information (CIHI), for the fiscal years 1981/82 through 1999/2000 and from the Ontario Health Insurance Plan (OHIP) billing claims for fiscal years 1993/94 through 1999/2000. The first step was to select all CIHI records for total hip replacements and total knee replacements. CIHI records were selected for total hip replacement if any of the valid procedure fields had the Canadian Classification of Therapeutic, Diagnostic and Surgical Procedure (CCP) code of either 9351 or 9359. Total knee replacement records were identified if the CCP code of 9341 was found in the procedure fields.

The second step was to differentiate between primary total joint replacements and revisions of total joint replacement. Total joint replacements for fractures and cancer were considered to be urgent and non-elective. Records were excluded if they had International Classification of Diseases, 9th edition (ICD-9), diagnostic codes for fractures (800x through 899x), non-medical causes of injury (E800-E869, E880-E928, and E950-E999), malignant neoplasms (140x through 208x), or neoplasms of uncertain behaviour (235x through 239x). Procedures were considered to be revisions of total joint arthroplasty if any one of ten fields for ICD-9 diagnostic codes included osteomyelitis of hip (7300 through 7303, 7308, and 7309), mechanical complications of internal prosthetic devise (9967), or post-operative infections (9985 and 9986). All remaining records were considered to be primary replacements of the total hip and total knee.

Since there are important variations in the age and sex structure of the Ontario population over time and among district health councils (DHC), the total joint replacement rates have been standardized to the 1996 census data from Statistics Canada. As few children or adolescents have total joint arthroplasty, the reported rates are for 100,000 adults (persons 20 years of age and older).

The third step was to estimate waiting times for primary total joint replacement procedures since fiscal year 1993/94. We matched OHIP claims with CIHI records on the unique identifying number encrypted by the Institute for Clinical Evaluative Sciences (ICES). We abstracted OHIP claims with the suffix of "A" and the fee codes for total primary hip replacement (R440 or R553), revision of total hip replacement (R241), total primary knee replacement (R441 or R248), and revision of total knee replacement (R244). Matching CIHI and OHIP records had to have the same unique identifying number, with the OHIP service date falling within admission and discharge dates on the CIHI records.

Waiting time, or time in the queue, is defined as the time between the date of consultation with the orthopedic surgeon performing the procedure and the date of primary total joint replacement (Axcell et al., 1998). The times in the queue were divided into four categories: one through two months, three months through five months, six months to one year, and over one year. We displayed waiting times for fiscal years 1993/94 through 1999/2000 and by DHC for 1999/2000. Waiting times were not standardized by age and by sex. We also examined the median waiting times for men and women by age groupings for various years to determine if changes in waiting times were related to gender.

INTERPRETIVE CAUTIONS

CIHI and OHIP data give a broad overview of the acute hospital and medical services provided to the people of Ontario. Williams and Young (1996) have reported on the reliability, validity, and limitations in uses of the data in research. CIHI and OHIP data provide limited clinical information about the patients, beyond procedure and primary diagnosis codes. As most total joint replacements are elective procedures, persons undergoing the procedures are relatively healthy, and co-morbidities are limited accordingly. At the same time, joints other than the one being replaced may be damaged by disease, and this damage would affect decisions about surgery, waiting times, and outcomes. Information about arthritis and disability beyond the joint being replaced is missing from the administrative data.

Family physicians and specialists manage individuals with hips and knees damaged by arthritis for unknown periods of time before referring them to orthopedic surgeons for consultation. Some individuals who consult orthopedic surgeons and who are appropriate candidates for total joint arthroplasty decide not to proceed with surgery for a variety of reasons. Others may decide to have surgery and, later, either delay surgery or, in some cases, cancel it (Blackstien-Hirsch et al., 2000).

The procedures for booking surgery vary by surgeon and by hospital across the province. Further, there may be cancellations or postponements that add to the time in the queue. Consultation date and date of surgery are documented and are commonly used in health services research, but the resulting times in the queue are arbitrary estimates of the burden of waiting.

We were able to match about 90 percent of the CIHI records with the OHIP records for 1993/94 to 1999/2000. There were sets of reasons for the mismatches. For half of the mismatching claims, the OHIP claims were for procedures other than the total joint replacements specified on the CIHI records. For about 25 percent of the unmatched records, there were no OHIP claims. Over half of these records were from hospitals in Kingston, where members of the South East Academic Medical Organization (SEAMO), full-time medical faculty at Queen's University, stopped billing for their services once they received a global contract from the Ministry for their services. As a result, reported waiting times for the Quinte, Kingston, and Rideau District Health Council are biased estimates. The remaining one-quarter of the mismatches related to CIHI records for non-orthopedic procedures.

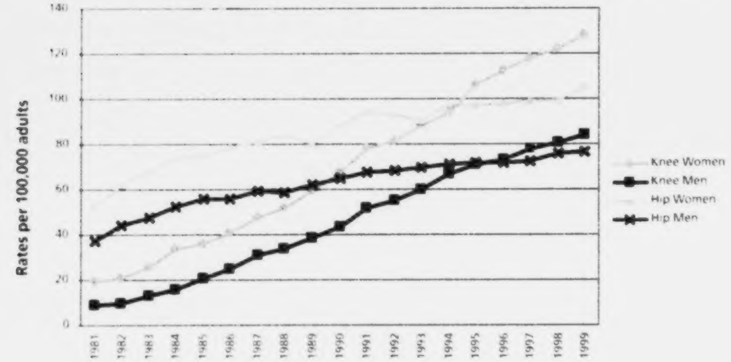
Lastly, there is no evidence on the impact of waiting on the progression of disease prior to surgery, complications and adverse events, rehabilitation, and long-term outcomes. Consequently, there is no well-defined consensus on appropriate waiting times. The categories of time are based on expert opinion, and the median time is an arbitrary point estimate.

FINDINGS AND DISCUSSION

The rates of total joint arthroplasty for hip replacements and knee replacements are increasing in Ontario, as can be seen in Exhibit 10-1, and there is little indication in the data for the last 20 years that the rates are levelling off. The rate for total knee arthroplasty surpassed the rate for total hip arthroplasty in the middle of the last decade, and the rate of increase of total knee arthroplasty is markedly higher than for the rate of total hip arthroplasty. The rates for hip replacements and knee replacements have been consistently higher for women than for men. One would expect women to have higher rates for the procedures than men, since women are more likely to have severe osteoarthritis. The rates are not adjusted for variations in the burden of illness.

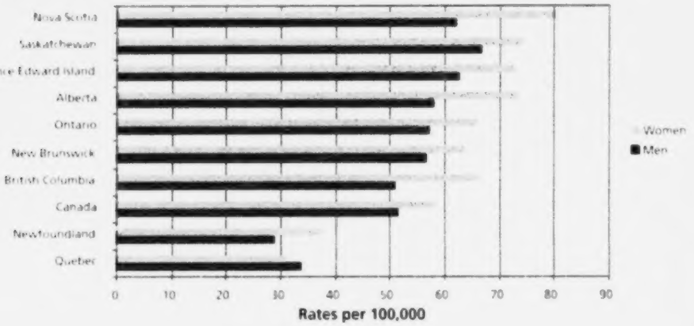
Some provinces have higher and lower rates for total joint arthroplasty than Ontario, for both men and women, as can be seen in Exhibits 10-2 and 10-3. The rates for Nova Scotia and Saskatchewan were approximately one-third higher than those in Ontario. The rates for Newfoundland and Quebec were about half those in Ontario. The rates published by CIHI (2000) are standardized for age, but they are for the total population — children, youth, and adults. Therefore, the CIHI rates are lower than, and cannot be compared directly to, the rates used in the report.

Exhibit 10-1. Total Joint Replacement Rates by Sex, Ontario, 1981–99



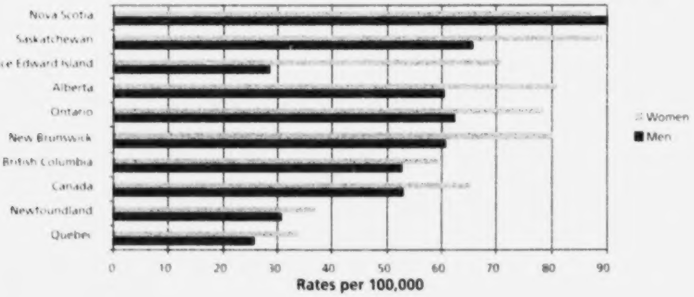
Data source: Canadian Institutes for Health Information, 1981/82–1999/2000

Exhibit 10-2. Total Hip Arthroplasty Rates by Sex and Province, 1997



Data source: Canadian Institute for Health Information, 2000 (www.cihi.ca/Roadmap/Health_Ind/indicators2000/toc.html).

Exhibit 10-3. Total Knee Arthroplasty Rates by Sex and Province, 1997

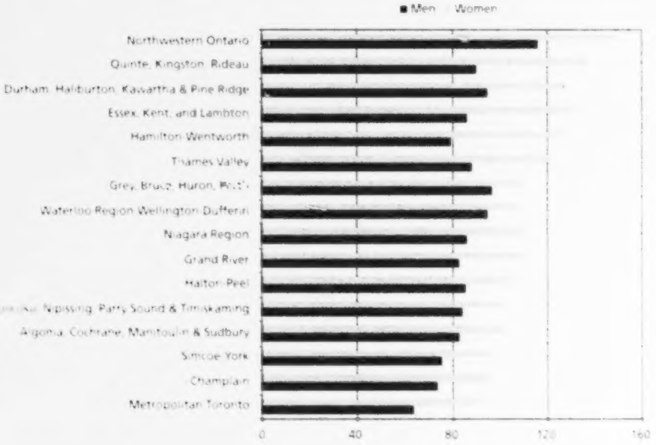


Data source: Canadian Institute for Health Information, 2000 (www.cihi.ca/Roadmap/Health_Ind/indicators2000/toc.html)

Exhibits 10-4 and 10-5 show gender variations in rates for total hip arthroplasty and total knee arthroplasty across the 16 DHCs in Ontario. Metropolitan Toronto has the lowest rates and Northwestern Ontario has among the highest rates for both procedures. Across DHCs, the total rates for total hip arthroplasty range from 79 to 133 procedures per 100,000 adults, and the range for total knee replacements is from 87 to 143 procedures per 100,000 adults. However, these variations are relatively small and do not appear to be inappropriate when looking at rates variations in a population (Naylor et al., 1994; van Walraven et al., 1996). The variations in rates may well reflect variations in physicians' perspectives on appropriateness, need, and individuals' willingness to undergo total joint arthroplasty, as well as the availability of services (Wright et al., 1995; Wright et al., 1999).

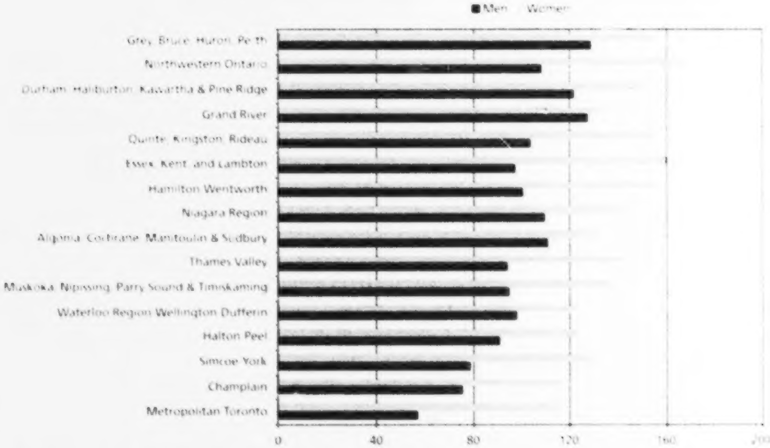
There are marked gender variations in the rates of total joint arthroplasty. In the Metropolitan Toronto DHC, the rates for total hip arthroplasty are 50 percent higher for women than for men, but for total knee arthroplasty the rate for women is twice as high as the rate for men. In Grand River there is little gender difference in total knee arthroplasty rates for men and women, but the rate for total hip arthroplasty for women is 34 percent higher than for men. The variations in total joint arthroplasty for men and women are as perplexing as the variations across DHCs.

Exhibit 10-4. **Total Hip Arthroplasty Rates by Sex and District Health Council, 1999/2000**



Data source: Canadian Institute for Health Information, 1999

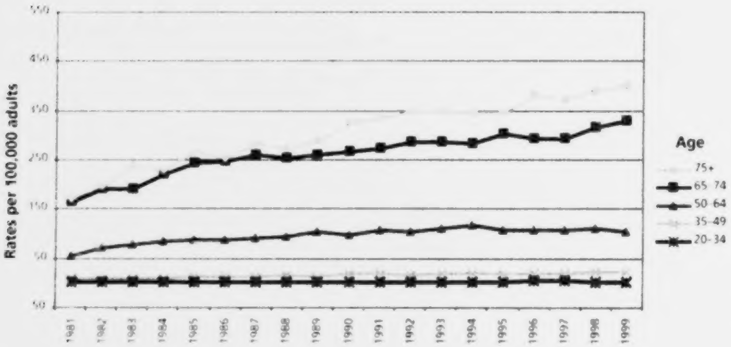
Exhibit 10-5. **Total Knee Arthroplasty Rates by Sex and District Health Council, 1999/2000**



Data source: Canadian Institute for Health Information, 1999/2000

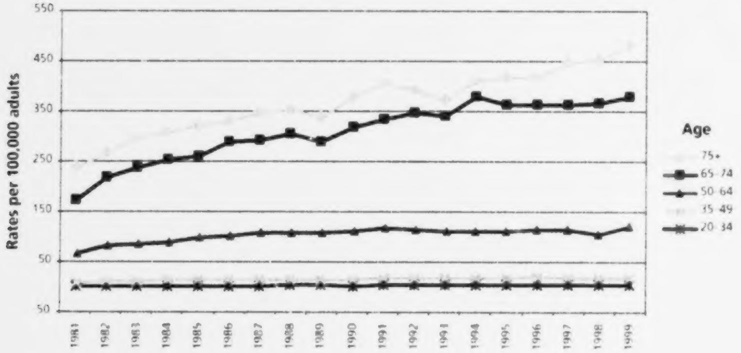
Exhibits 10-6 and 10-7 show total hip arthroplasty rates for men and women by age, and Exhibits 10-8 and 10-9 show similar rates for total knee arthroplasty. Generally speaking, the rates and rate increases are directly related to age. The rates for total joint arthroplasty remain low for women and men under the age of 50 years, and most of the growth is seen in seniors over 65 years of age.

Exhibit 10-6. Total Hip Arthroplasty Rates for Men in Ontario by Age, 1981–99



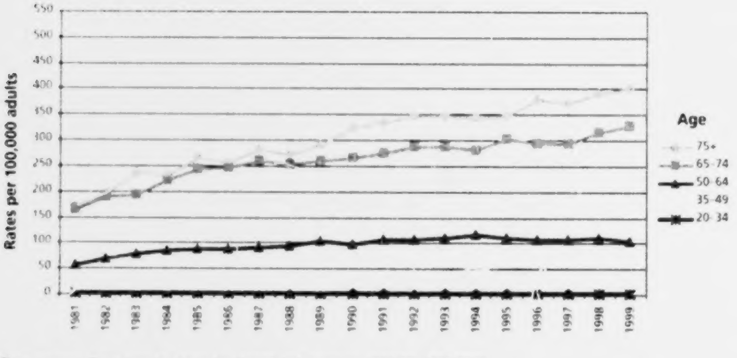
Data source: Canadian Institute for Health Information, 1981/82–1999/2000.

Exhibit 10-7. Total Hip Arthroplasty Rates for Women in Ontario by Age, 1981–99



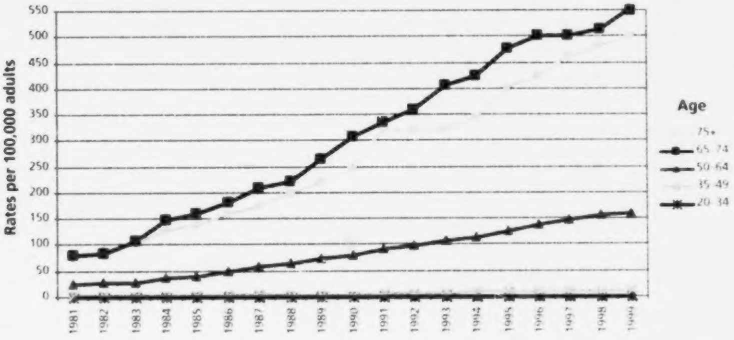
Data source: Canadian Institute for Health Information, 1981/82–1999/2000

Exhibit 10-8. Total Knee Arthroplasty Rates for Men in Ontario by Age, 1981–99



Data source: Canadian Institute for Health Information, 1981/82–1999/2000

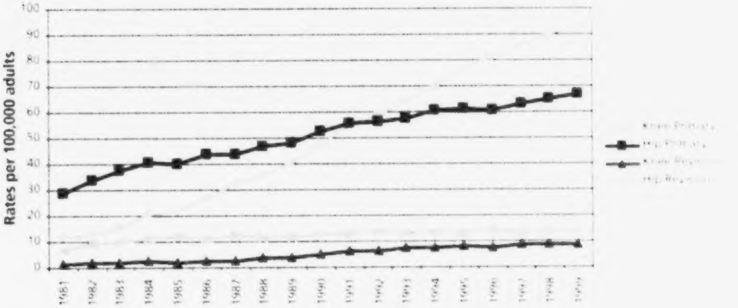
Exhibit 10-9. **Total Knee Arthroplasty Rates for Women in Ontario by Age, 1981–99**



Data source: Canadian Institute for Health Information, 1981/82–1999/2000

Primary procedures account for most of the rate increases for total joint arthroplasty, as can be seen in Exhibit 10-10. While there is some growth in revision rates of total hip replacements and total knee replacements, the increases are small. Generally speaking, about 90 percent of the prostheses last for ten years and then begin to fail. There are growing numbers of people in Ontario with prostheses who will outlive their implants, so it is not surprising that the number of revisions of total hip replacements and total knee replacements continues to increase. However, it is very difficult to predict how the trends will move over time.

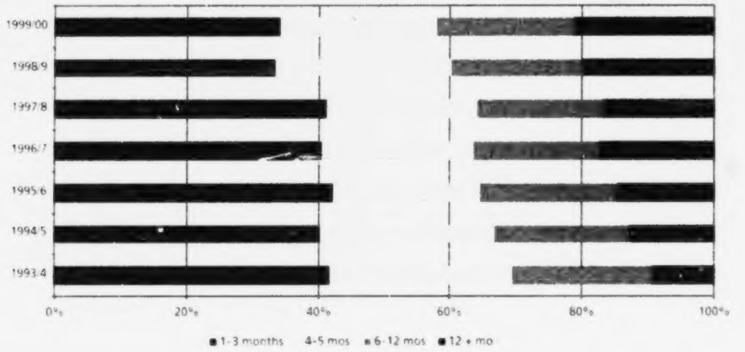
Exhibit 10-10. **Primary and Revision Rates for Total Joint Arthroplasty in Ontario, 1981–99**



Data source: Canadian Institute for Health Information, 1981/82–1999/2000

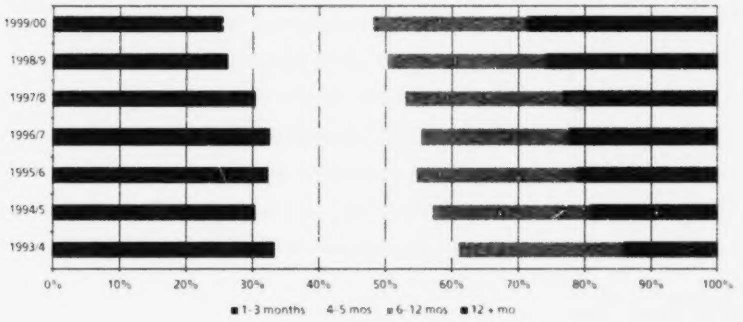
Exhibits 10-11 and 10-12 show that the waiting time for total joint arthroplasty has increased over time. In 1993/94, 42 percent of hip patients and 33 percent of knee patients had total joint arthroplasty within three months of consultation with the surgeon. In 1999/2000, only 25 percent of knee patients and 34 percent of hip patients had their procedures within three months of consultation. Over this seven-year time period, the percentages of total hip replacement patients and total knee replacement patients who had to wait over a year for their procedures doubled. The increase in the numbers of total joint arthroplasty patients has not served to reduce the waiting times.

Exhibit 10-11. Waiting Times for Primary Total Hip Arthroplasty by Year



Data source: Ontario Health Insurance Plan, 1993/94–1999/2000, and Canadian Institute for Health Information, 1993/94–1999/2000.

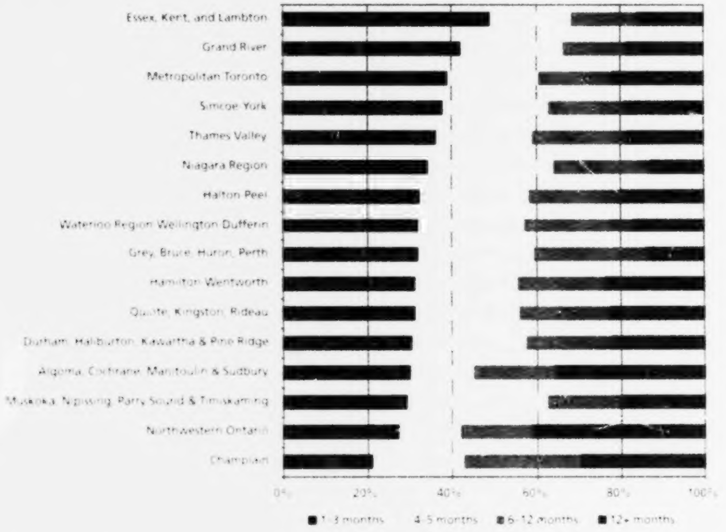
Exhibit 10-12. Waiting Times for Primary Total Knee Arthroplasty by Year



Data source: Ontario Health Insurance Plan, 1993/94–1999/2000, and Canadian Institute for Health Information, 1993/94–1999/2000.

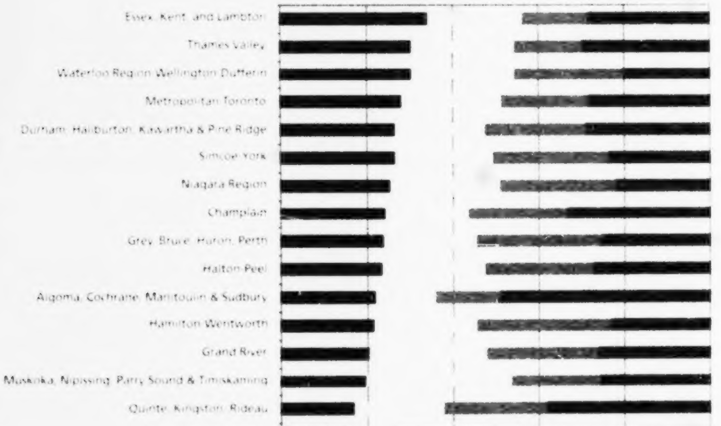
As can be seen in Exhibit 10-13, the median wait times for total hip arthroplasty increased from 16 weeks in 1993/94 to 20 weeks in 1998/99. Throughout the time period, the median wait times decreased with age. In 1998/99 the median wait times were 23 weeks for persons under 65 years of age, 19 weeks for those between the ages of 65 and 74 years, and 17 weeks for individuals 75 years of age and older. The median times were longer for total knee arthroplasty (Exhibit 10-14), but they show the same declines in waiting times by age. The median wait times for knee patients were 20 weeks in 1993/94 and 26 weeks in 1998/99. In the latter time period the median wait times were 30 weeks for persons under 65 years of age, 26 weeks for those between the ages of 65 and 74 years, and 23 weeks for individuals 75 years of age and older.

Exhibit 10-13. **Waiting Times for Primary Total Hip Arthroplasty in Ontario by District Health Council, 1999/2000**



Data source: Ontario Health Insurance Plan, 1999/2000, and Canadian Institute for Health Information, 1999/2000

Exhibit 10-14. **Waiting Times for Primary Total Knee Arthroplasty in Ontario by District Health Council, 1999/2000**



Data source: Ontario Health Insurance Plan, 1999/2000, and Canadian Institute for Health Information, 1999/2000

Median wait times for women and for men by age group, for both total hip arthroplasty and total knee arthroplasty, were examined. There is nothing to indicate that women consistently have shorter or longer waiting times than men in the queue for total joint arthroplasty over the six-year period. Gender differences in waiting times balance out across the age groups.

The administrative data give us a broad view of total joint replacements in Ontario, but the data do not tell us about the need and the unmet demand for the services. Patients are referred to orthopedic surgeons for consultation. There are no agreed upon standards for appropriateness for surgery. Surgeons based their decisions on clinical presentation, indications of pain and functional disability, and preferences of the patient. Most surgeons place patients in the queue according to date of consultation, since there is little evidence for converting ratings of severity into an indicator for urgency and timing of surgery that is predictive of outcome. Surgeons operate when operating room time for the procedure becomes available. The time patients spend in the queue varies from surgeon to surgeon and hospital to hospital.

More specifically, one does not know if the differences in total joint arthroplasty between men and women are related to differences in the prevalence of disease, contraindications to surgery, preferences with respect to surgery, or the patterns of medical and surgical management (Hawker et al., 2000). It is reported that women have worse pain and disability in their hips and knees than men do at the time of total joint arthroplasty, and that women have surgery later in the course of their disease (Katz et al., 1996). Hawker and her colleagues (2000) have shown that while there is a greater burden of disease in women, women are not more likely or less likely than men to have contraindications to surgery. More research is required on gender differences in preferences for management and on what happens when men and women in need see their doctors for pain and disability in the hips and knees.

Hawker and her colleagues (2000, 2001, in press) have an ongoing study of the need and the demand for total arthroplasty in both a low-rate and a high-rate area for total joint replacements. They are using their study to determine if there are differences between men and women in the potential need for arthroplasty and in willingness to undergo the procedure. The study began with a survey of all households in the two areas with residents 55 years of age and older, and it progressed through three phases. In Phase 1, all listed residents 55 years of age and older were asked to identify joints with symptoms of arthritis, functional disability, and whether or not they had undergone total joint replacement. There were 39,333 eligible residents in East York and in Oxford County and 72 percent of them responded. Fifty-eight percent of the participants were women.

Five percent of Phase 1 participants had undergone joint arthroplasty. After adjusting for differences in age, self-reported arthroplasty, and arthritis, women were less likely to have had total joint arthroplasty for either hip or knee problems.

Phase 2 included persons reporting moderate to severe disability with respect to movement, pain or stiffness in joints, and symptomatic hips and knees. In Phase 1, 14 percent of the women and eight percent of the men met the criteria, and 82 percent of them participated in Phase 2, after excluding those who died or who were unable to participate. They completed the Western Ontario Osteoarthritis Index (WOMAC) (Bellamy, Buchanan, Goldsmith, Campbell, & Stitt, 1988), the 36-item Short Form Health Survey (Stewart, Hayes, & Ware, 1988), and the disability subscale of the Health Assessment Questionnaire. They were also asked about the presence of other chronic health problems.

The WOMAC is one of the most commonly used instruments for measuring pain and disability in patients with arthritis. The measure ranges from 0 (no pain or disability) to 100 (most severe pain and disability). Hawker and her colleagues set 39 as the cut-off point, as it represented the 25 percentile of scores for patients undergoing arthroplasty in Ontario (Williams, Llewellyn-Thomas, Arshinoff, Young, & Naylor, 1997). In Phase 3, all individuals in East York with scores of 39 or higher, and a random sample of those with lower scores, underwent a standard joint examination as well as radiographs, and this testing enabled Hawker and her colleagues to assess the sensitivity and specificity of the cut-off value.

Seventy-five percent of women and 71 percent of men among the Phase 2 respondents were currently seeing physicians for joint problems, and about five percent of the men and the women were on waiting lists for surgery. Women (56.7%) were more likely than men (50.3%) to have cut-off scores of 39 or more on the WOMAC.

Hawker and her colleagues (2000, 2001, in press) derived a definition for potential need for total joint replacement. In addition to a WOMAC score of 39 or more, individuals had to be without contraindications for surgery (self-reported) and with clinical and radiological evidence of arthritis. Individuals who either had undergone surgery or were waiting for surgery were excluded. Hawker and her colleagues estimated that, for Phase 1 respondents, 45 of 1,000 women and 21 of 1,000 men had potential need for arthroplasty. Those with potential need were presented with information about the risks and benefits of having surgery or not, as well as alternative treatment, and then asked about their willingness to have arthroplasty. Among those with potential need, only 13 percent of the women and nine percent of the men were "definitely willing" to have surgery. For every 1,000 respondents in Phase 1, five women and two men had potential need and were willing to undergo total joint replacement. The researchers concluded that there is underuse of total joint replacement for severe arthritis in both sexes, but the degree of underuse is three times greater for women than for men.

Individuals who had surgery or were on waiting lists were not asked about the duration of waiting times. One cannot infer for any given year how many persons are waiting for surgery, or how many persons are appropriate for surgery but are not considering it, relative to the numbers of individuals who have total joint arthroplasty.

In this population-based study, Hawker and her colleagues (2000) found that total joint arthroplasty was underused in both men and women, but the degree of underuse was greater for women than for men. Estimates of potential need for arthroplasty were twice as great for women as for men, largely because of the higher prevalence of severe hip and knee arthritis in women. In comparison with men, women reported greater pain and more disability. Women also required more personal assistance with the activities of daily living, largely because they were more likely to live alone than were men. Contrary to earlier reports in the literature, men and women were equally likely to be willing to undergo arthroplasty, given their severity of disease and comorbid conditions (Karlson, Daltroy, Liang, Eaton, & Katz, 1997).

Hawker and her colleagues (2001) also compared the need and willingness of respondents to have surgery by the areas in which they lived -- East York, an area with a low rate of total joint arthroplasty, and Oxford County, a high-rate area. The potential need for arthroplasty was 36 per 1,000 residents in Oxford County, compared with 29 per 1,000 in East York. Among individuals with potential need, 15 percent of the respondents in Oxford County were definitely willing to have surgery, compared to nine percent of the respondents in East York. The adjusted estimates of need were five per 1,000 in the high-rate area and two per 1,000 in the low-rate area. Area variations in use of total joint arthroplasty reflect both the need and the willingness to have surgery.

Hawker and her colleagues (in press) also considered the impact of the socioeconomic status of respondents on the potential need for total joint arthroplasty and on the willingness to have surgery. Less education and a lower income independently predicted worse arthritis symptoms, disability, and a greater potential for unmet need for total joint arthroplasty. Of note, women were significantly more likely than men to have low income and less education. There may be an interaction between sex and socioeconomic status with respect to the provision of joint arthroplasty. However, willingness to undergo arthroplasty was not associated with education or income.

Hawker and her colleagues are following the study participants for five years. They will track the participants to see what services they actually used, to determine which of them move on to waiting lists and have total joint replacements, and to see the factors that predict the time in the queue. The findings from their prospective cohort study will continue to provide insights into the dynamics of gender, the need and demand for total joint arthroplasty, and the uses of surgical services.

CONCLUSIONS

Over the past 20 years, health-care data show steady increases in the numbers and rates for total hip arthroplasty and total knee arthroplasty. There is little reason to believe that the use of these services will decline in the near future. Rate variations across the provinces are greater than the variations across the DHCs in Ontario. The rates and rate increases are greater for senior citizens in Ontario than for younger adults. The rates are higher for women than for men, and gender differences are marked across provinces and DHCs in Ontario. The Canadian Institute for Health Information is monitoring and reporting on total joint arthroplasty across health districts in its National Health Reports.

Total joint arthroplasty continues as a priority program for the Ministry of Health and Long-Term Care (MOHLTC). Although the time in the queue for total joint arthroplasty is increasing, wait times decrease with age and they are essentially the same for men and for women. There are marked variations in waiting times across the province.

The MOHLTC is funding and co-sponsoring the Ontario Joint Replacement Registry (OJRR), which is now being rolled out across the province. The Ontario Orthopaedic Association (OOA) is co-sponsoring the registry, and the registry is part of the Canadian Joint Replacement Registry (CJRR) managed by the Canadian Institute for Health Information sponsored by the Canadian Orthopaedic Association. The advisory committee of the OJRR is working with the recommendations of the ICES working group. It will take at least two years before the OJRR is completely up and running. British Columbia is adapting and implementing a version of the OJRR for tracking and managing waiting times.

In January 1999 the MOHLTC asked the Institute for Clinical Evaluative Sciences (ICES) to form a consensus group of key stakeholders to review the problem and set forth recommendations regarding the rating of severity and urgency of patients awaiting total joint arthroplasty, to recommend strategies for tracking patients in the queue and managing waiting times, and to recommend a system for evaluating the impact of waiting times on the outcomes of patients following surgery. The consensus group reported in August 2000 (Blackstien-Hirsch et al., 2000). Their key recommendations were as follows:

- Orthopedic surgeons providing total hip and total knee replacements should be required to participate in the registry.
- Orthopedic surgeons should complete a standardized consultation note.
- All patients requiring primary hip/knee replacement should be requested to complete a WOMAC questionnaire on the date of consultation.
- When the surgeon and the patient both agree to proceed to surgery, a date should be booked and the consultation note and the patient WOMAC questionnaire should be forwarded to the registry for data entry and to place the patient on the waiting list.
- The registry should mail a questionnaire to each patient, containing the WOMAC, 12 months after the date of surgery.

The consensus group anticipated that the collection of data from orthopedic surgeons and patients would provide information on the following points:

- Waiting lists with standardized definitions for the entry/removal of patients from the list.
- Waiting times for consultation and for surgery, linked with clinical severity to allow for prioritization on the basis of urgency.
- Patient outcomes in terms of reduction of pain, improvement in function, and satisfaction with waiting times, hospital services, and care provided by orthopedic surgeons.

The managers of the Ontario Joint Replacement Registry, the Advisory Committee, and the MOHLTC are working with the recommendations as the registry is being implemented.

The consensus group considered the possibilities of a standard referral letter to be completed by primary care physicians when making referrals to orthopedic surgeons, collecting clinical and WOMAC data at the hospital immediately before patients undergo surgery, and following patients beyond the period of 12 months to assess longer-term outcomes. The feasibility and costs of these steps have to be demonstrated before specific recommendations can be set forth for consideration.

Following the release of a report commissioned by Health Canada (McDonald et al., 1998; Sanmartin et al., 2000), the federal government funded the Western Canada Waiting List Project through the Health Transition Fund. Waiting time for total joint replacements is one of the four sets of services studied by the project. It recommended tools and strategies for assessing the severity of patients and for setting priorities in waiting times, and the recommendations are being implemented in some health districts in western Canada (Western Canada Waiting List Project, 2002).

The federal and provincial ministers of health included waiting times for total joint replacements as one of the indicators in reports on the accountability of the health-care system in Canada. The first reports are to be released in September 2002. There is consensus on the information required on waiting times and the severity of patients in the queue. Policy makers, hospitals, and surgeons have yet to determine the best management systems for translating information into action that will improve access and reduce waiting times.

The research by Hawker and her colleagues (2000, 2001, in press) provides convincing evidence that area variations reflect underlying differences in need and willingness to have surgery. Men and women bear and tolerate the burden of pain and disability resulting from arthritis in the hips and knees even though they may be aware of the benefits of total joint arthroplasty. Although women have higher rates of total hip arthroplasty and total knee arthroplasty than men, women suffer more from unmet needs: the potential need for arthroplasty is twice as great among women as among men. When taking into consideration the greater prevalence of osteoarthritis in women, as well the respondents' willingness to undergo arthroplasty, the unmet need was three times as great among women as among men (Charlson & Allegrante, 2000).

With respect to total joint arthroplasty in Ontario, the challenges are fourfold. The first challenge is for the health-care system to meet the growing demand for hip and knee surgery. By applying current total joint arthroplasty rates to future population projections, the numbers of total hip replacements and total knee replacements are expected to double over the next 20 years. Real growth in health-care expenditures is required to keep pace with this expected demand.

The second challenge is to reduce the time patients spend in the surgeon's queue. There is reasonable consensus that most individuals with severe pain and disability should wait no longer than three months before having total joint arthroplasty. The majority of the remaining patients waiting for surgery should be in the queue no longer than six months. The Ontario Joint Replacement Registry is designed to address the first two challenges. The Women's Health Council may well endorse its implementation.

The third challenge is to reduce the prevalence of the burden of pain and disability from osteoarthritis that could be alleviated by total joint arthroplasty.

The fourth challenge is to reduce gender differences in unmet need for this surgery. Charlson and Allegrante (2000) posit that community programs, designed to raise awareness of total joint replacement and its outcomes, are required to reduce or meet these challenges. The feasibility and cost-effectiveness of community-based educational interventions have yet to be evaluated. Further research is required to address the latter two challenges, and Hawker and her colleagues are making strides in these directions.

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CHAPTER 11 – WORK INJURIES

Jennifer Payne and Cam Mustard

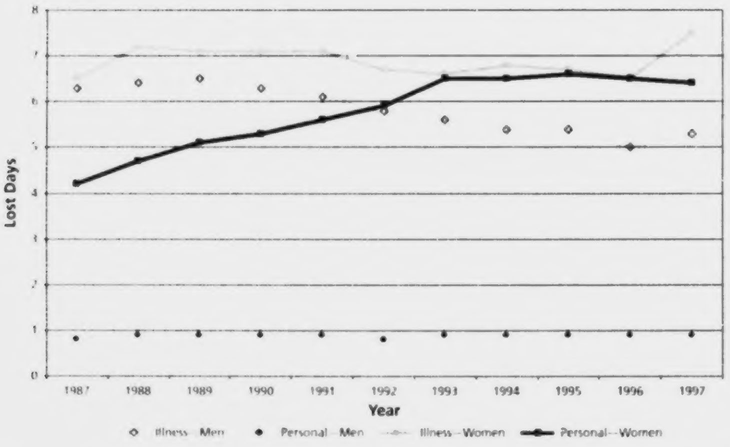
OVERVIEW

Women's labour force participation has increased over the last 25 years. However, little is known about how women might differ from men in their risk of occupational injury. Frequencies of compensated work-related injuries are much higher for men than for women. This analysis attempts to explain the gender difference by focusing on the nature of the claim, both in duration and in description of the injury, as well as on the claimant, including both the industrial sector and the occupational classification. Analysis of the rates of compensated injuries revealed no gender difference in the nature of the claims. Although there were substantial gender differences in claims rates by industrial sector, there were few gender differences in claims rates by occupational grouping. Combining these results, it appears that the overall higher rate of compensated injury claims among men is a result of men being employed proportionally more often in higher-risk occupations. This analysis shows that a focus on gender alone is unhelpful in understanding what puts employees at risk of workplace injury.

BACKGROUND/INTRODUCTION

Over the past 25 years, women's labour force participation has increased substantially, continuing a trend that began in the 1950s. In 2000 approximately 59.5 percent of women aged 15 or older participated in the labour force, compared to 72.5 percent of men (Sunter, 2001). Women now make up just less than half of the total employment in the Canadian economy. Despite this marked increase in female participation, Canadian labour force statistics tell us that men and women remain differentially distributed across occupations, with women predominating in industry sectors such as service, health care, education, and office/administrative roles. Women are also more likely to be engaged in part-time employment — among those employed in Canada, 28 percent of women and ten percent of men worked part time in 1999 — and part-time work has risen substantially in the last decade (Marshall, 2001).

Exhibit 11-1. Annual Work Absence Days for Full-Time Paid Workers, 1987–98



Data source: Akyeampong EB. Work Absence Rates, 1987 to 1998. Statistics Canada Catalogue no. 71-535-MPB, no 10. 1999.

Although women's labour force participation has increased, women remain responsible for the majority of home- and family-related tasks. This dual responsibility can lead to "role strain" and, possibly, adverse health consequences (Duxbury, 2001). This imbalance in responsibilities is reflected in the much greater number of work days lost for personal and family care for women as compared to men (Exhibit 11-1), a figure that has been increasing among women in the last ten years but has remained stable for men. Similarly, the number of work days lost for reasons of sickness and disability is higher among women than men, though both show a downward trend. For women this decrease could simply reflect a change in attribution of the absence — from sickness to the personal/family category (perhaps because workplaces now consider it legitimate to be absent for this reason) — the same does not appear to hold true for men.

Historically, women were restricted or discouraged from participation in some occupations because of the potential reproductive consequences of certain chemical or physical exposures. In contemporary work environments, concerns about the health of pregnant women have focused on biomechanical exposure and its potential effect on pregnancy duration and fetal well-being (Cherry, 1987; Moore, Dumas, & Reid, 1990).

With the increased participation of women in paid work roles, the expectation has grown that women may have been increasingly exposed to the occupational health risks associated with male employment. The largest single cause of work-related morbidity and health-related work absence in the Canadian workforce remains workplace injury. In 1994, estimates obtained from the National Population Health Survey indicate that Canadian workers experienced almost one million work-related injuries serious enough to result in restrictions on activity. The male rate of injury per 1,000 labour force participants was 81.6; the female rate was 46.1 (Mustard et al., 2001). Four years later, in 1998, NPHS respondents reported a significant reduction in workplace injuries, with the male injury rate declining to 45.7 per 1,000 and the female rate to 23.0 per 1,000. This information, derived from a large health interview survey sample, confirms a similar trend observed in the filing of compensation claims to the Ontario Workplace Safety & Insurance Board (WSIB). In Ontario in 1990 there were approximately 390,000 workers' compensation claims — that is, claims that may or may not have involved wage replacement benefits (WSIB, 1999). By 1999 this figure had declined to 280,000. This same decline is also evident with the subset of claims involving wage replacement benefits, though the proportion of women among these claimants has increased from 25.8 percent in 1990 to 31.3 percent in 1999. This increase in the proportion of all injuries resulting in time lost from work for women is also evident nationally (Chung, Cole, & Clarke, 2000).

The very favourable decline over the past decade in the incidence of workplace injury has preserved the male/female ratio in injury incidence. Here is the paradox: with men and women participating in the labour market in approximately equal numbers, why do women experience apparently lower rates of injury? Do women work more safely, or do women work in less hazardous occupations? Alternatively, does the higher frequency of part-time work among women simply mean that they are less exposed to the health risks of work than men?

A significant obstacle to resolving the explanations for the gender difference in work injury has been a relative absence of surveillance data that combines information on labour force participation with measures of the incidence and nature of work injury. In the course of administering wage-loss insurance benefits and the coverage of health-care services, Workers Compensation Boards in Canada collect detailed information on the cause and nature of work injury and the duration of work absence arising from injury for workers employed by insured firms. Unfortunately, Workers Compensation Boards have not typically collected information on the characteristics of the insured workforce that would support the detailed description of rates of injury. In this brief report we describe our effort to integrate information on workplace injuries from the Ontario Workplace Safety & Insurance Board with information on labour force participants obtained from the Statistics Canada Labour Force Survey so as to improve descriptions of differences between men and women in the incidence of workplace injury, the nature of injury, and the duration of disability following injury.

METHODS

Information on individual compensation claims for injuries resulting in work absence was obtained from administrative files maintained by the Ontario Workplace Safety & Insurance Board for the period 1990–2000. Analyses were restricted to "lost-time claims" for which there is information available on the nature of the injury, the part of the body injured, the occupation and industrial sector in which the worker was employed, the typical hours of work for the injured employee, and the duration of wage benefits associated with the claim.

Estimates of the employed labour force in Ontario over this same time period were obtained from the Statistics Canada Labour Force Survey (Ottawa, 2000). These estimates were stratified by occupation, industrial sector, full- or part-time employment status, and gender.

Using WSIB injury claims reports as numerators and the Labour Force Survey estimates as denominators, descriptive results are reported for men and women. Given the gender difference in the proportion of people working part time, analyses were reported separately for full-time and part-time employees to account for differences in work environment exposure for men and for women.

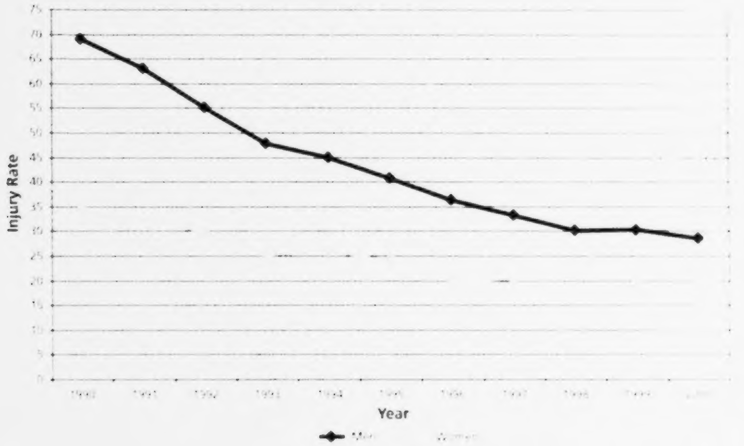
Frequencies of lost-time claims are shown for part of body and nature of injury as recorded in the WSIB database. Rates of lost-time claims are shown stratified separately by industry, coded according to WSIB industrial sectors that can be mapped to the Standard Industrial Classification (SIC, 1980), and by occupation, coded as per the Standard Occupational Classification (SOC, 1980). The most recent data available for occupation and industry are presented — the calendar year 1998.

RESULTS

Exhibit 11-2 reports the trend in the incidence of lost-time claims for the period 1990–2000 for men and women who were employed full time in the Ontario labour force. Claims rates for women were consistently lower than those for men over the decade. In addition, the decline in the rate of time-loss injury for men was much more aggressive than the decline for women. Over the decade, the male rate of injury declined by more than one half, from approximately 69 per 1,000 to 29 per 1,000. The relative decline for women was more modest, from 34 per 1,000 in 1990 to 19 per 1,000 in 2000.

Gender differences in occupation appear to account for a substantial fraction of the observed differences in overall injury rates for men and for women. Exhibit 11-3 reports the estimated numbers of men and women in 21 occupation groups in Ontario in 1998. Men dominate employment in product fabricating, assembling, and repairing occupations, machining and related occupations, transportation occupations, construction occupations, and material handling and related occupations. Women dominate in clerical occupations, medicine and health occupations, and

Exhibit 11-2. Lost-Time Injury Claim Rate (per 1,000 people) for Full-Time Employees, 1990–2000



Data source: Workplace Safety & Insurance Board. Lost-Time Claims Data 1990–2000

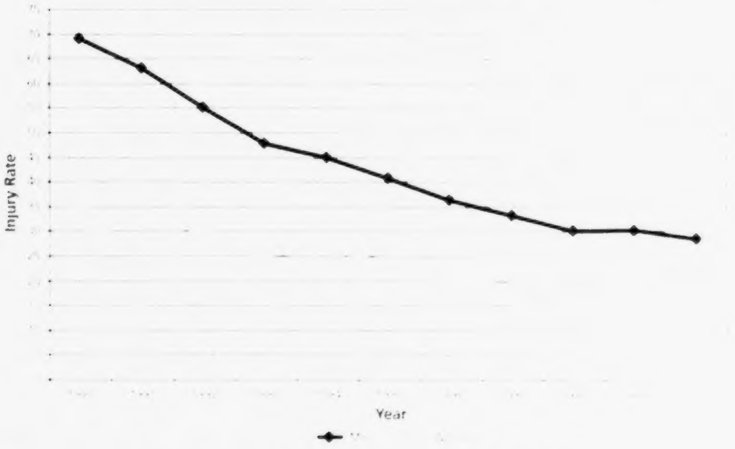
Exhibit 11-3. Lost-Time Injury Claim Rate (per 1,000 people) by Occupation, 1998

	Full-time				Part-time			
	Men		Women		Men		Women	
Occupation	Rate	N*	Rate	N*	Rate	N*	Rate	N*
Service	36.37	189,259	29.09	177,997	24.82	38,406	20.42	85,921
Products fabricating, assembling, and repairing	32.80	286,413	22.02	90,352	21.78	18,226	18.44	4,624
Machining and related	96.03	80,428	110.57	7,273	71.24	4,138		
Transport equipment/operating equipment	59.92	100,025	36.11	12,168	38.61	14,082	130.76	862
Clerical and related	25.78	130,980	8.43	312,286	42.48	9,987	4.42	149,974
Processing	60.55	77,459	53.87	29,127	41.22	4,816	42.54	2,396
Construction trades	45.41	128,434	31.54	4,118	17.45	20,047		
Medicine and health	47.70	21,974	42.99	99,278	55.06	924	11.31	59,279
Sales	16.19	151,708	17.50	130,042	23.00	21,930	17.73	42,838
Materials handling and related	48.25	74,537	18.80	33,821	15.61	19,496	18.65	2,317
Teaching and related	5.04	55,099	10.74	99,023	5.76	5,607	9.23	26,693
Farming, horticultural, and animal husbandry	47.73	24,552	27.41	11,951	12.95	6,571	16.08	2,079
Social science and related	15.75	14,410	37.84	19,686	24.30	786	18.34	5,571
Managerial, administrative, and related	1.82	299,001	1.84	257,366	2.05	14,448	1.60	24,254
Natural sciences, engineering, and mathematics	10.88	61,631	12.95	13,389	4.71	4,761		
Other crafts and equipment operating	17.30	32,232	17.16	7,731	8.76	2,665	11.00	851
Artistic, literary, recreational, and related	9.07	30,247	6.63	26,816	5.02	6,723	5.82	8,285
Mining and quarrying, including oil and gas	39.66	7,854	–	–				
Forestry and logging	67.50	3,709	–	–				
Fishing, hunting, trapping, and related	–	–	–	–				
Religion	–	6,822	0.66	1,438	1.91	1,049		
Total	**30.05**	**1,825,147**	**17.61**	**1,288,203**	**24.43**	**192,167**	**12.19**	**415,446**

Data source: Workplace Safety & Insurance Board. Lost Time Claims Data for 1998

** N = estimated number of people in occupation*

Exhibit 11-2. Lost-Time Injury Claim Rate (per 1,000 people) for Full-Time Employees, 1990–2000



Data source: Workplace Safety & Insurance Board, Lost-Time Claims Data, 1990–2000

Exhibit 11-3. Lost-Time Injury Claim Rate (per 1,000 people) by Occupation, 1998

	Full-time				Part-time			
	Men		Women		Men		Women	
Occupation	Rate	N*	Rate	N*	Rate	N*	Rate	N*
Service	36.37	189,259	29.09	177,997	24.82	38,406	20.42	85,921
Products fabricating, assembling, and repairing	32.80	286,413	22.02	90,352	21.78	18,226	18.44	4,624
Machining and related	96.03	80,428	110.57	7,273	71.24	4,138		
Transport equipment operating equipment	59.92	100,025	36.11	12,168	38.61	14,082	130.76	862
Clerical and related	25.78	130,980	8.43	312,286	42.48	9,987	4.42	149,974
Processing	60.55	77,459	53.87	29,127	41.22	4,816	42.54	2,396
Construction trades	45.41	128,434	31.54	4,118	17.45	20,047		
Medicine and health	47.70	21,974	42.99	99,278	55.06	924	11.31	59,279
Sales	16.19	151,708	17.50	130,042	23.00	21,930	17.73	42,838
Materials handling and related	48.25	74,537	18.80	33,821	15.61	19,496	18.65	2,317
Teaching and related	5.04	55,099	10.74	99,023	5.76	5,607	9.23	26,693
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Natural sciences, engineering, and mathematics	10.88	61,631	12.95	13,389	4.71	4,761		
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Artistic, literary, recreational, and related	9.07	30,247	6.63	26,816	5.02	5,723	5.82	8,285
Mining and quarrying, including oil and gas	39.66	7,854	–					
Forestry and logging	67.50	3,709	–					
Fishing, hunting, trapping, and related	–	–	–					
Religion	–	6,822	0.66	1,438	1.91	1,049		
Total	30.05	1,825,147	17.61	1,288,203	24.43	192,167	12.19	415,446

Data source: Workplace Safety & Insurance Board, Lost-Time Claims Data for 1998

* N = estimated number of people in occupation

teaching occupations. The risk of work injury among men and women within the same occupational group is generally similar. The range of injury risk across occupations is dramatic, from a low of approximately two per 1,000 worker years for men and women in management and administrative occupations to a high of approximately 100 per 1,000 worker years in machining and related occupations.

The very substantial role of occupation in determining the risk of injury is highly relevant when considering gender differences in injury claim rates observed across industrial sectors. As is depicted clearly in Exhibit 11-4, injury claim rates differ substantially between men and women in many industrial sectors. The principal explanation for these differences lies in the different occupational roles played by men and by women in each of these sectors.

Exhibit 11-4. Lost-Time Injury Claim Rate (per 1,000 people) by Industry, 1998

	Full-time				Part-time			
	Men		Women		Men		Women	
Industry	Rate	N	Rate	N	Rate	N	Rate	N
Agriculture	52.59	23,554	25.89	12,930	26.81	3,552	9.54	3,484
Automotive	40.97	125,885	31.05	51,507	26.88	7,240	20.78	3,318
Chemical processing	22.50	75,684	15.81	35,263	12.54	5,056	7.20	3,956
Construction	40.29	118,824	2.97	24,141	20.48	16,696	1.89	5,526
Education	10.87	42,079	7.45	67,407	10.98	4,353	7.16	18,866
Electrical utilities	19.61	19,948	4.81	8,980	8.00	1,841	1.42	1,975
Food	36.14	66,501	24.29	37,451	24.90	5,520	16.91	4,269
Forest	46.48	15,426	19.14	4,127	21.27	1,361		
Health care	12.85	75,864	25.80	197,920	12.57	7,541	10.08	101,388
Manufacturing	28.80	552,212	11.08	297,610	16.61	46,140	6.67	53,128
Mining	21.91	21,193	1.54	3,522	14.32	1,513	4.23	612
Municipal	33.64	22,758	13.65	11,286	18.42	2,308	9.24	3,027
Pulp & paper	14.07	19,075	6.25	5,670	9.80	1,396	0.96	591
Service	25.10	490,771	15.16	480,477	26.30	69,126	13.11	204,197
Steel	39.04	38,579	8.00	10,185	20.37	2,439	3.56	980
Transportation	55.08	116,795	17.34	39,727	51.21	16,085	19.29	9,704
Total	30.05	1,825,147	17.61	1,288,203	24.43	192,167	12.19	415,446

Data source: Workplace Safety & Insurance Board, Lost-Time Claims Data for 1998

Exhibit 11-5 (a and b) compares the nature of the injury and the part of the body injured between men and women at two time points in the past decade: 1990 and 2000. In general, the patterns seen for both the distribution of injuries across anatomical site and by the nature of injury are remarkably similar for men and for women. The increasing frequency of upper extremity injury over time was observed in both men and women, as was the reduction in the proportion of all injuries resulting in sprains and strains.

Exhibit 11-5a. Part of Body Injured for Lost-Time Injury Claimants Employed Full-Time, 1990 and 2000

	Men (%)		Women (%)	
Part of Body	1990	2000	1990	2000
Back (including spine, spinal cord, and neck)	27,103 (31)	15,559 (29)	10,069 (32)	7,342 (30)
Upper extremities	20,808 (24)	13,487 (25)	6,944 (22)	5,857 (24)
Lower extremities	16,533 (19)	10,278 (19)	4,939 (16)	3,907 (16)
Trunk (excluding back)	3,562 (4)	1,389 (3)	704 (2)	472 (2)
Head	568 (1)	155 (0.2)	303 (1)	75 (0.3)
Other	19,415 (22)	12,768 (24)	8,058 (26)	6,425 (27)
Total	87,989	53,636	31,017	24,078

Data source: Workplace Safety & Insurance Board, Lost-Time Claims Data for 1990 & 2000

Exhibit 11-5b. Nature of Injury for Lost-Time Injury Claimants Employed Full-Time, 1990 and 2000

	Men (%)		Women (%)	
Nature of Injury	1990	2000	1990	2000
Sprains and strains	42,258 (48)	21,612 (40)	16,371 (52)	[illegible]
Bruises, contusions	15,494 (18)	6,114 (11)	5,725 (18)	[illegible]
Cuts, lacerations, punctures	10,272 (12)	5,909 (11)	2,449 (8)	[illegible]
Fractures	4,235 (5)	4,026 (8)	1,002 (3)	1,143 (5)
Amputations	375 (0.4)	506 (0.9)	64 (0.2)	74 (0.3)
Other	15,355 (17)	15,469 (29)	5,406 (17)	7,584 (31)
Total	87,989	53,636	31,017	24,078

Data source: Workplace Safety & Insurance Board, Lost-Time Claims Data for 1990 & 2000 teaching occupations. The risk of work injury among men and women within the same occupational group is generally similar. The range of injury risk across occupations is dramatic, from a low of approximately two per 1,000 worker years for men and women in management and administrative occupations to a high of approximately 100 per 1,000 worker years in machining and related occupations.

The very substantial role of occupation in determining the risk of injury is highly relevant when considering gender differences in injury claim rates observed across industrial sectors. As is depicted clearly in Exhibit 11-4, injury claim rates differ substantially between men and women in many industrial sectors. The principal explanation for these differences lies in the different occupational roles played by men and by women in each of these sectors.

Exhibit 11-4. Lost-Time Injury Claim Rate (per 1,000 people) by Industry, 1998

	Full-time				Part-time			
	Men		Women		Men		Women	
Industry	Rate	N	Rate	N	Rate	N	Rate	N
Agriculture	52.59	23,554	25.89	12,930	26.81	3,552	9.54	3,484
Automotive	40.97	125,885	31.05	51,507	26.88	7,240	20.78	3,318
Chemical/processing	22.50	75,684	15.81	35,263	12.54	5,056	7.20	3,956
Construction	40.29	118,824	2.97	24,141	20.48	16,696	1.89	5,526
Education	10.87	42,079	7.45	67,407	10.98	4,353	7.16	18,866
Electrical utilities	19.61	19,948	4.81	8,980	8.00	1,841	1.42	1,975
Food	36.14	66,501	24.29	37,451	24.90	5,520	16.91	4,269
Forest	46.48	15,426	19.14	4,127	21.27	1,361	–	–
Health care	12.85	75,864	25.80	197,920	12.57	7,541	10.08	101,388
Manufacturing	28.80	552,212	11.08	297,610	16.61	46,140	6.67	53,128
Mining	21.91	21,193	1.54	3,522	14.32	1,513	4.23	612
Municipal	33.64	22,758	13.65	11,286	18.42	2,308	9.24	3,027
Pulp & paper	14.07	19,075	6.25	5,670	9.80	1,396	0.96	591
Service	25.10	490,771	15.16	480,477	26.30	69,126	13.11	204,197
Steel	39.04	38,579	8.00	10,185	20.37	2,439	3.56	980
Transportation	55.08	116,795	17.34	39,727	51.21	16,085	19.29	9,704
Total	30.05	1,825,147	17.61	1,288,203	24.43	192,167	12.19	415,446

Data source: Workplace Safety & Insurance Board, Lost-Time Claims Data for 1998

Exhibit 11-5 (a and b) compares the nature of the injury and the part of the body injured between men and women at two time points in the past decade: 1990 and 2000. In general, the patterns seen for both the distribution of injuries across anatomical site and by the nature of injury are remarkably similar for men and for women. The increasing frequency of upper extremity injury over time was observed in both men and women, as was the reduction in the proportion of all injuries resulting in sprains and strains.

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Back (including spine, spinal cord, and neck)	27,103 (31)	15,559 (29)	10,069 (32)	7,342 (30)
Upper extremities	20,808 (24)	13,487 (25)	6,944 (22)	5,857 (24)
Lower extremities	16,533 (19)	10,278 (19)	4,939 (16)	3,907 (16)
Trunk (excluding back)	3,562 (4)	1,389 (3)	704 (2)	472 (2)
Head	568 (1)	155 (0.2)	303 (1)	75 (0.3)
Other	19,415 (22)	12,768 (24)	8,058 (26)	6,425 (27)
Total	87,989	53,636	31,017	24,078

Data source: Workplace Safety & Insurance Board. Lost-Time Claims Data for 1990 & 2000

Exhibit 11-5b. Nature of Injury for Lost-Time Injury Claimants Employed Full-Time, 1990 and 2000

	Men (%)		Women (%)	
Nature of Injury	1990	2000	1990	2000
Sprains and strains	42,258 (48)	21,612 (40)	16,371 (53)	10,774 (45)
Bruises, contusions	15,494 (18)	6,114 (11)	5,725 (18)	3,185 (13)
Cuts, lacerations, punctures	10,272 (12)	5,909 (11)	2,449 (8)	1,518 (6)
Fractures	4,235 (5)	4,026 (8)	1,002 (3)	1,143 (5)
Amputations	375 (0.4)	506 (0.9)	64 (0.2)	74 (0.3)
Other	15,355 (17)	15,469 (29)	5,406 (17)	7,384 (31)
Total	87,989	53,636	31,017	24,078

Data source: Workplace Safety & Insurance Board. Lost-Time Claims Data for 1990 and 2000

Exhibit 11-6 reports the duration of wage replacement benefits, in days, for male and female WSIB-insured full time employees in Ontario. The duration of wage loss benefits for absence can be understood to indicate, in part, the severity of the workplace injury. In 1990 approximately 18 percent of the total time-loss claims files by men resulted in work absences of greater than 30 days. An identical fraction of time-loss claims files by women resulted in work absences of greater than 30 days. The very substantial reduction in the average duration of time-loss claims over the decade was experienced equivalently by men and women. Between 1990 and 2000 the proportion of all claims with durations of seven days or less increased from 42 percent to 55 percent for both men and women.

Exhibit 11-6. Duration of Wage Replacement Benefits for Lost-Time Injury Claimants Employed Full-Time, 1990 and 2000

	Men (%)		Women (%)	
Duration (days)	1990	2000	1990	2000
<=7	37,396 (42)	29,131 (54)	13,052 (42)	13,356 (55)
8–29	34,106 (39)	17,206 (32)	12,552 (40)	7,966 (33)
30+	16,495 (19)	7,347 (14)	5,417 (17)	2,807 (12)
Total	87,997	53,684	31,021	24,129

Data source: Workplace Safety & Insurance Board, Lost Time Claims Data for 1990 and 2000

DISCUSSION

Work-related morbidity and disability have a substantial impact on the health of working-age populations and impose important direct and indirect costs on the economy. Rising rates of female labour force participation over the past 50 years have raised concerns that the health of women may be affected by increasing levels of exposure to occupational health risks traditionally experienced by men. The patterns described in this brief analysis of Workers' Compensation Claims in the province of Ontario indicate clearly that women and men in the same occupational role in the labour force experience very similar risks of workplace injury. The distribution of injuries by site on the body and by nature of the injury are similar in men and in women, and the severity of injuries, as indicated by the duration of wage replacement benefits, is also largely equivalent between men and women.

The past decade has seen an increase in the numbers of work absences associated with disability arising from upper extremity musculoskeletal disorders. A significant fraction of these disorders are thought to arise from cumulative trauma associated with repetitive motions. Although these exposures are sometimes described as being more frequent in occupations with high concentrations of women, and therefore might result in a higher frequency of cumulative trauma disorders in women. Canadian research suggests that these disorders are common in both men and women. A study in Manitoba, for example, found that 48 percent of all defined repetitive strain injury claims occurred to the 45 percent of the workforce that was female (Yassi, Sprout, & Tate, 1996). Defining cumulative trauma disorders of the upper extremity in administrative claim records is a challenging measurement task (Beaton, 1995). The incidence of these disorders is not included in this report.

Exhibit 11-6 reports the duration of wage replacement benefits, in days, for male and female WSIB-insured full-time employees in Ontario. The duration of wage-loss benefits for absence can be understood to indicate, in part, the severity of the workplace injury. In 1990 approximately 18 percent of the total time-loss claims files by men resulted in work absences of greater than 30 days. An identical fraction of time-loss claims files by women resulted in work absences of greater than 30 days. The very substantial reduction in the average duration of time-loss claims over the decade was experienced equivalently by men and women. Between 1990 and 2000 the proportion of all claims with durations of seven days or less increased from 42 percent to 55 percent for both men and women.

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DISCUSSION

Work-related morbidity and disability have a substantial impact on the health of working-age populations and impose important direct and indirect costs on the economy. Rising rates of female labour force participation over the past 50 years have raised concerns that the health of women may be affected by increasing levels of exposure to occupational health risks traditionally experienced by men. The patterns described in this brief analysis of Workers' Compensation Claims in the province of Ontario indicate clearly that women and men in the same occupational role in the labour force experience very similar risks of workplace injury. The distribution of injuries by site on the body and by nature of the injury are similar in men and in women, and the severity of injuries, as indicated by the duration of wage replacement benefits, is also largely equivalent between men and women.

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A focus on the claims rates by industrial sector shows substantial gender differences. A similar focus on claims rates stratified by occupation shows little gender differences in these rates. These results point to a substantial similarity in the consequences of men's and women's exposures to physical and biomechanical challenges in the work environment. Combining the industrial sector analysis results with the occupational results leads us to believe that men may not be at higher risk of workplace injury than women. Rather, the distribution of men and women across the labour force is sufficiently different that the overall result is a higher claims rate for men than for women. These results reveal that gender is not a good marker for risk of injury: it is the occupation, or the tasks that make up that occupation, that appears best able to identify workers at risk of injury.

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CHAPTER 12 – DISABILITIES

DEBORAH STIENSTRA AND ENZA GUCCIARDI

OVERVIEW

Women with disabilities in Ontario face many of the same health concerns and issues as other women. Their health status and access to services may be complicated by their physical or mental conditions, but their health is affected even more by the social context within which their condition becomes a disability. Many health-care providers fail to recognize or accept the autonomy of women with disabilities to make informed decisions individually or with their chosen advocate. These health-care providers often reduce women to their disability and are unable to consider their other health concerns. In addition, women with disabilities face differing levels of access to health-care services depending on their disability, ethno-racial background, or language. Women with disabilities can expect poorer levels of health partly because they have more difficulty obtaining paid employment and often live in poverty. Much of the most recent research related to women with disabilities has been done by the women themselves, shedding a much-needed light on a diverse population. Governments and health professionals must increase their awareness of, and become more active in addressing, the special health-care issues that face women with disabilities.

BACKGROUND

Disability is a term with many different meanings. Some assume it refers simply to a medical or psychological condition that limits functioning within society. According to the 2001 World Health Organization International Classification of Functioning, Disability and Health (ICF) (World Health Organization, 2001), it is imperative to describe how people live with their health conditions and to consider the intersections between health, body functions, activities and participation from a body, and the individual and the societal level. This assertion suggests that disability encompasses not only the physical or mental conditions that affect the body/mind but the ways in which environments create obstacles or barriers to those individuals with these conditions. Thus, disability refers to the societal context that renders a person with a physical or mental condition as different from the norm and requiring different treatment.

The Canadian Charter of Rights and Freedoms and the Canadian Human Rights Act provide the framework for the treatment of all Canadians, including those with disabilities. Equality and full citizenship for all, including those with physical or mental disabilities, are considered rights (Valentine, 2001). These rights were confirmed by the Supreme Court of Canada. In 1997 the Court ruled, in the Eldridge case, that the failure of the British Columbia government to provide sign-language interpretation to deaf individuals when they received medical care was an infringement of their rights (The Canadian Hearing Society, 1997). Individuals with disabilities are also ensured equal access to appropriate care under the Canada Health Act (Department of Justice Canada, 1984). Despite this legislation, many Canadian women with disabilities continue to be more at risk for poverty and other factors that negatively determine health. Consequently, they feel that their needs are not being met by the health-care system, particularly in the primary care sector (Branigan, Stewart, Tardif, & Veltman, 2001; DeJong, 1997; Masuda, 1999; Veltman, Stewart, Tardif, & Branigan, 2001).

Across the world, persons with disabilities are among the most underserviced people, in terms of medical care and other services (Frye, 1993). However, disability issues are now receiving greater attention worldwide. The UN Standard Rules identify the availability of suitable medical and health care as an essential perquisite if people with disabilities are to enjoy equal opportunities in the societies where they live (United Nations, 1994).

Various countries have enacted legislation to ensure medical accessibility. For instance, the American with Disabilities Act of 1990 (ADA) (Mandelman, 1996) which prohibits discrimination on the basis of physical or mental disabilities, mandates reasonable accommodation by removing obstacles that hamper persons with disabilities (Martin, 1994). ADA is intended to provide not only equal treatment but also equal opportunity, and it imposes significant new responsibilities on physicians (Howard-Martin, 1993) so that medical services will be provided to all individuals with disability, using the same standards of care as those provided for any other individual. However, there has been criticism that this Act is not fully enforced and that many physicians do not abide by its rules (Mandelman, 1996; Nosek, 1992).

SOURCES OF INFORMATION

The last Canada-wide survey related to disability was the 1991 Health and Activity Limitation Survey (HALS) (Statistics Canada, 1995). HALS considered seven disability types: hearing, seeing, speaking, agility, mobility, mental learning, and physical disabilities not otherwise classified. In 1989 Environics undertook a substantial survey of disabled Ontarians for the Office of Disabled Persons (Environics, 1989). In 2001 the Participation and Activity Limitation Survey (PALS) was completed, but data will not be available until 2003. Both HALS and PALS are linked with the census and provide the most complete information available on the situation of people with disabilities. In addition, the National Population Health Survey (NPHS) provides some indication of several key aspects related to disability, including changes in activity limitation status, but its data are generally less reliable in addressing broad dimensions of disability. Unfortunately, it does not cover the entire population, nor does it use the same definition of disability or activity limitation found in HALS or PALS.

Using the HALS data, Fawcett detailed the economic profile of people with disabilities (Fawcett, 1996). More recently, using updated data from a variety of sources together with qualitative methods, Fawcett developed a labour market profile of women with disabilities in Ontario (Fawcett, 2000).

METHODS

As there is limited Ontario data on health issues and concerns for women with both physical and intellectual disabilities, a literature review was conducted using primarily Canadian and American qualitative and quantitative studies.

INTERPRETIVE CAUTIONS

Several factors limit the generalizability of the research cited. Many studies used a relatively small sample of participants, drawn from volunteers or organizational membership. Women from minority groups were not well represented. Not all studies examined both physical and intellectual disabilities, and many studies focused only on one or two particular conditions. With limited data available, these studies provide a snapshot of key issues and concerns around the health of women with disabilities. Much more research is required to provide a clear overview of the health of women with disabilities in Ontario.

FINDINGS AND DISCUSSION

HEALTH STATUS

Very little is known about the health status of people with disabilities in Canada, especially women with disabilities. In 1991 people with disabilities made up 15.5 percent of the Canadian population (Fawcett, 1996; Statistics Canada, 1995), and women with disabilities, 16.2 percent of the population. Aboriginal and First Nations people have a much higher incidence of disability — 31 percent, or approximately twice the national rate (Statistics Canada, 1993). Diabetes is especially problematic among Aboriginal peoples (Assembly of Manitoba Chiefs, 1997).

There are provincial differences in the rate of disability, and, in Ontario, people with disabilities constituted 16.2 percent of the population. There is some indication that, between 1991 and 1996, the rate of disability increased across Canada and in Ontario (Fawcett, 2000). Women in Ontario aged 35 to 44 experienced a 29 percent increase in their disability rate, while other age groups experienced less severe increases ranging from 18.3 percent for women 65 years and older to 23.9 percent for women 55 to 64 years (Fawcett, 2000).

There are wide variations in the type and severity of disabilities. Mobility and/or agility limitations are the most common, with approximately 59 percent of all people with disabilities reporting some mobility disability in 1991.

Rates of disability increase with age and vary among seniors. The HALS and NPHS data give different ratios between senior women and men, likely because of the more limited definition of disability used in NPHS. HALS suggests that, in 1991, 48 percent of women over 65 had disabilities, while only 43 percent of their male counterparts did. NPHS data suggest that, in 1996/97, only 24 percent of women over 65 experienced disability, while 25.8 percent of men did (Statistics Canada, 2000).

Over half a million adult women have a disability in Ontario. They are more likely to be poor and without paid employment than women without disabilities. The poverty rate among women with disabilities in Ontario was 36.2 percent in 1995 (Fawcett, 2000). Employment rates for women with disabilities in Ontario varied by location: 67.6 percent of women with disabilities in Sudbury, 58.8 percent in Ottawa, 61.8 percent in Toronto, and 57.5 percent in Thunder Bay did not have paid employment in 1995 (Fawcett, 2000).

Women with disabilities are more likely to live alone than are men or women without disabilities, almost one in ten are lone parents, and over 15 percent experienced food shortages at least once in 1996 (Fawcett, 2000). These factors, with other issues such as access to child care and barriers to employment, lead to an increased experience of stress. Women with disabilities who are lone parents have the highest level of stress for any adult group, according to NPHS data, and women with disabilities have higher levels of stress than any other group, regardless of living arrangements (Fawcett, 2000).

HEALTH NEEDS AND CONCERNS

Women with disabilities in Canada identify a variety of different issues and concerns related to their health, including reproductive health (sexuality, birth control, childbirth, forced sterilization, and autonomy of choices), violence and abuse, addictions, reproductive and genetic technologies, poverty, access to services, and privacy and autonomy (Chappell, 1996; Doe & Kimpson, 1999; Masuda, 1998; Masuda, 1999; Morrow, 2000). These issues are similar to ones raised by other women in Canada, but for women with disabilities they are shaped by the predominance of an individualized, often over-medicalized approach to their lives (Gill, Kirschner, & Reis, 1994). Too often health-care providers and health researchers reduce women with disabilities to their disability and overlook other health issues (Morrow, 2000; Welner, 1998).

Health concerns and practices for women with disabilities are often complicated by their physical or mental conditions. Some individuals with disabilities may suffer from one or many conditions and may be more vulnerable than others without disabilities to common and chronic health conditions. This susceptibility can increase their health-care needs, as some conditions tend to surface earlier and have worse consequences than in the non-disabled population (Manton, 1989; Thomas, 1999).

Individuals with disabilities may present symptoms differently from non-disabled individuals or require alternative treatments that take into account their particular underlying impairments and functional limitations (Thomas, 1999). Among those with disabilities, therefore, certain conditions may not be promptly diagnosed and/or treated (Nosek & Howland, 1997). It has been noted that several components of a standard physical health examination may be omitted in women with disabilities, putting them at greater risk of having secondary conditions go undiagnosed (Nosek, Howland, & Young, 1997; Welner, 1998; Welner, Foley, Nosek, & Holmes, 1999).

SEXUAL AND REPRODUCTIVE HEALTH

Women with disabilities are often assumed to be asexual by doctors, other health professionals, and their communities (Basson, 1998). Health professionals may talk to their attendants or family members and ignore the woman with disabilities (Carty, 1998). As a result, women with disabilities frequently receive insufficient or inappropriate health-care information and services related to their sexual and reproductive health. In an Ontario study, participants with disabilities reported low discussion rates of sexuality (28.4 percent), contraception (17.9 percent), STDs (14.4 percent), and reproductive choices (9.5 percent) (Branigan et al., 2001). Some women with disabilities may avoid regular gynecologic visits altogether (Becker, Stuifbergen, & Tinkle, 1997).

Sexuality

For many women with disabilities, key issues related to sexuality include concern about lowering of sexual desire and physical limitations that may impair sexual enjoyment or changes in sexual response as a result of their condition or its treatment (Basson, 1998; Morrow, 2000). Once these problems have been acknowledged and discussed openly with her sexual partner and, if necessary, with health-care providers, a woman with disabilities may be able to find responses to assist her in engaging more enjoyably in sexual activities. Lesbians with disabilities face additional barriers to health care and information (Masuda, 1999).

Contraception

Women with disabilities, in particular adolescents, may be uninformed or misinformed about sexual matters and safe sex practices. They may depend on health-care professionals for sex education (Berman et al., 1999). Many disabled women have difficulty in finding reliable contraceptive information.They may have problems finding a birth control method suitable to their particular disability (e.g., limitations in manual dexterity, contraindications of prescribed medications, or the ability to understand their proper use) (Nosek, Wuermser, & Walter, 1998). Failure to achieve reliable contraception will increase the risk of unwanted pregnancies and STDs (Basson, 1998; Becker, Stuifbergen, & Tinkle, 1997). Studies have found that women with severe disabilities are significantly more likely than the non-disabled to have hysterectomies or no contraception at all as a means of birth control (Nosek, Howland, & Young, 1998). Some women and girls with developmental disabilities in Canada were sterilized without their consent under the mistaken belief that it would prevent expressions of sexuality and the possibility of reproduction. In 1999 the Alberta government offered compensation and an apology for its actions in forced sterilization between 1928 and 1972. The British Columbia government was taken to court in 2000 for similar actions (Canadian Press, 2000).

STDs

Sexually transmitted diseases can arise in women with disabilities from consensual intercourse or from sexual abuse (Welner, 1996). Sensory impairment may limit a woman's ability to detect common signs of pelvic infection, such as pelvic pain. Women with disabilities require testing for all STDs, especially if they are in a high-risk group and if they wish to be tested (Welner et al., 1999). Education about the signs and symptoms of STDs is crucial to achieve early treatment and to avoid transmission of, or the development of, late-stage STD complications (Walsh, Heller, Schupf, van Schrojenstein, & de Valk, 2001).

Cancer screening

Women with disabilities have the same biological risks as other women for developing all cancers. Unfortunately, barriers to effective cancer screening for disabled women include lack of knowledge among these women, neglect on the part of health-care providers, and physical access barriers (Welner, 1998). Together, these factors may delay diagnosis and treatment of many common malignancies. Women with disabilities, in particular those who are older, are less likely to receive regular Pap tests and mammograms (Nosek & Howland, 1997). However, one Ontario study found that women with disabilities had Pap tests and mammograms at rates similar to those of the non-disabled population (Branigan et al., 2001). Although some of the barriers to cancer screening are structural, such as inaccessible examination tables, stirrups, and lack of appropriate examining instruments for impaired women, studies show that physicians sometimes fail to recommend any screening for women with disabilities (Nosek, Young, & Rintala, 1995). Some disabled women describe health-care providers as insensitive to and unaware of disability issues and the way they affect reproductive health (Nosek,Young, & Rintala, 1995).

Childbearing

Women with disabilities who are considering bearing children face a number of challenges. Since many physicians find it hard to perceive women with disabilities as mothers, they fail to provide appropriate information (Carty, 1998). Some disabled women still get negative reactions to pregnancy from family members and close friends, as well as from health-care providers (Burns, 2000; Traustadottir & Johnson, 2000). Access to physician's' offices and to hospital labour, delivery, and postpartum rooms is required. In addition, women with disabilities may require "attitudinal accessibility" — the recognition that they are not invisible and that they need appropriate supportive care (Carty, 1998). One Canadian study noted that First Nations women with fetal alcohol syndrome/fetal alcohol effect (FAS/FAE) (Masuda, 1999) may face unique challenges in pregnancy. "All of these women have trouble keeping their appointments and the doctors sometimes refuse to see them. The women are so intimidated they don't come back and they are afraid to see another doctor. They need special care during pregnancy.... They have a hard time looking after themselves. They regress after having a baby and become like children themselves, and they need to be watched carefully" (Masuda, 1999).

Reproductive and genetic technologies

Despite recent federal legislation (introduced in 2001) to address reproductive and genetic technologies, there is almost no research on the implications of these technologies for women with disabilities in Canada. Two key areas are often identified by women with disabilities — the use of prenatal diagnosis and selective abortion; and the willingness of society to accommodate disability (Asch, 1999) and access to these technologies for women with disabilities (Drapkin & Anderson, 2001).

Menopause and other midlife health issues

One Canadian study of women with disabilities highlighted some key midlife health issues for women with disabilities. Not only do many women with disabilities experience social and economic changes as a result of a worsening of their disability but they also face intensified or more complicated health concerns than women without disabilities. These problems include mental and emotional changes, physical changes (especially a decrease in energy), changes in sexual intimacy, and changes in their disabilities as a result of midlife changes (Morrow, 2000).

VIOLENCE AND SEXUAL ASSAULT

Children and women with disabilities are one of the most highly victimized groups in Canada (Rivers-Moore et al., 1993). The Disabled Women's Network of Canada surveyed 400 women with disabilities, and 50.8 percent reported physical abuse, 51.1 percent reported emotional abuse, 43.1 percent were neglected, and 66.3 percent had experienced sexual abuse (Masuda, 1995). Children and women with intellectual disabilities are more likely to be physically and sexually abused than the population at large (Carlson, 1997; Mansell, Sobsey, & Moskal, 1998) While women with physical disabilities are at the same risk for physical and sexual abuse as other women, they experience abuse over longer periods of time (Young, Nosek, Howland, Chanpong, & Rintala, 1997). It has been estimated that women with disabilities are 1.5 to ten times more likely to be abused than non-disabled women, depending on whether they live in the community or in an institution (Sobsey & Vamhagen, 1989). Disabled women who live in institutional settings and severely disabled women are at higher risk of abuse because they are more dependent on larger numbers of people and are less able to escape or to report the abuse (Rivers-Moore et al., 1993). Overall, only a small proportion of abuse among women with disabilities is ever reported to the police, community agencies, or other authorities (Beail & Warden, 1995; Rivers-Moore et al., 1993).

Women with disabilities face some unique risk factors that make them especially susceptible to physical, emotional, and/or sexual abuse. These risk factors include the inability to leave an abusive situation because of impaired mobility or communication skills; dependency on the abuser for affection, communication, housing, and financial, physical, and medical aid; and greater perceived vulnerability because of physical, mental, and emotional limitations (Carlson, 1997; Nosek, 1996; Rivers-Moore et al., 1993; Sobsey & Vamhagen, 1989). Furthermore, few rape/crisis centres, shelters, and treatment programs are available or appropriately set up for women with disabilities (Carlson, 1997; Mansell, Sobsey, & Moskal, 1992; Welner et al., 1999).

Substance abuse and violence

The consequences of violence and sexual abuse in women with disabilities frequently include depression, anxiety, low self-esteem, post-traumatic stress disorder, and substance abuse (Martin, Morris, & Romans, 1998). There is considerable evidence for an association between a woman's substance abuse and her victimization through violence, which suggests either that there is a correlation between early victimization and the development of substance abuse later in life (Chappell, 1996; Miller & Downs, 1995; Miller, Downs, & Testa, 1993) or that abusing alcohol or illicit drugs increases a women's chance of becoming a victim of violence (Bennett, 1995; Kantor & Straus, 1989). The literature confirms that women with disabilities are more likely to be victims of substance abuse-related violence than their male counterparts (Li, Ford, & Moore, 2000).

Barriers

Despite the high risk of abuse among girls and women with disabilities, primary health-care providers often fail to look for symptoms of abuse from medical histories and physical examinations (Nosek, Howland, & Young, 1997). When a woman with a disability reports abuse to a physician, the physician should directly and privately acknowledge her experience, ask whether or not she is in imminent danger, document on the woman's chart the sites and kinds of injuries, plan for follow-up care, and provide her with appropriate information and resources (Nosek, Howland, & Young, 1997; Welner et al., 1999; Young et al., 1997). Awareness of abuse issues, knowledge of reporting laws, and social services contacts enable the practitioner to make appropriate suggestions (Welner et al., 1999).

SUBSTANCE ABUSE

The extent of substance abuse among women with disabilities in Canada is unknown, although one study estimates that approximately half a million women with disabilities in Canada have problems with addictions (Chappell, 1996). US studies suggest that rates of substance abuse and addiction among women with disabilities are three times higher than among non-disabled persons (Buss & Cramer, 1989; Greer, 1986; Perez-Stable, Miranda, Munoz, & Ying, 1990).

According to a Canadian study, women with disabilities reported tobacco as the most commonly used substance but considered the use of alcohol and prescription medications to cause greater problems. Many women said they used substances because of isolation, discrimination, lack of acceptance, lack of control over their life, high levels of stress and anger, depression, poverty, low self-esteem, poor overall health, and dependence on medications related to their disabilities, all of which could exacerbate addiction problems (Chappell, 1996; DeJong, 1997). The consequences of substance abuse and addiction vary according to the substance used and the severity and type of disability (DeJong, 1997). Inaccessibility to medical services, lack of physician sensitivity, and the inability of service providers to give assistance and information about programs available for substance abuse problems were cited as key barriers to treatment (DeJong, 1997). Family physicians or other health-care professionals may not spot substance abuse addiction in women with disabilities partly because these care providers are unaware of the higher risks in the disabled population (DeJong, 1997).

Tobacco and alcohol

Smoking among women with disabilities is estimated to be double the rate in non-disabled counterparts (DeJong, 1997; Nosek, 2000). Alcohol use is a similar concern among people with disabilities (Bombardier, 2000; Hogan, McLellan, & Bauman, 2000). Young people with both mental and intellectual disabilities are more likely to get drunk and to smoke cigarettes than those without disabilities (Blum, Kelly, & Ireland, 2001; Hogan, McLellan, & Bauman, 2000; Milberger et al., 1997). One Ontario study (Branigan et al., 2001) reports that smoking was discussed by health-care professionals with only 15.4 percent of participants with disabilities. Similarly, inquiry about alcohol consumption was as low as 13.4 percent (Branigan et al., 2001).

Prescription drugs

According to qualitative data, disabled women in Canada claimed that physicians were always willing to prescribe additional drugs (DeJong, 1997) but did not always provide enough information about a drug's side effects, addictive characteristics, and interaction with other medications (DeJong, 1997; Masuda, 1999).

POVERTY

Income is a determinant of health, and women with disabilities have substantially less access to employment income, lower income when employed, and more limited other sources of income (Fawcett, 1996). As a result, there is a higher rate of poverty among women with disabilities than among non-disabled women or men with or without disabilities (Fawcett, 1996; Roeher Institute, 2001; Statistics Canada, 1995). In addition, people with disabilities have additional non-reimbursed disability-related expenses that they incur, including prescription drugs, assistive devices, and medical services. In 1991 approximately 30 percent of people with disabilities of working age had these expenses. In Ontario it was almost 32 percent (Statistics Canada, 1995). As a result of limited income, many women with disabilities are unable to explore alternative forms of health care to address their disabilities (Masuda, 1999).

MENTAL HEALTH CONCERNS

It has been suggested that women with disabilities may be at greater than average risk of having mental health problems such as depression and stress-related symptoms. This higher risk may result from pain and illness, low fitness levels, inability to carry out self-care activities and the need for personal assistance, low self-esteem (DeJong, 1997), and increased time, planning, and effort needed to do everyday tasks (Nosek, Young, & Rintala, 1995). Social isolation, lack of intimate relationships, and vulnerability to abuse may also make women with disabilities more prone to depression (Meins, 1993; Nosek, Young, & Rintala, 1995; Reiss & Benson, 1985; Rosen & Burchard, 1990; Sands & Kozleski, 1994; Traustadottir & Johnson, 2000). Poverty and limited access to the work and job market among women with disabilities may further increase their risk of mental health problems (Nosek, Young, & Rintala, 1995; Reiss, 1990; Traustadottir & Johnson, 2000; Walsh et al., 2001).

Many studies of primary care services find that physicians fail to detect depressive symptoms in more than half of their depressed patients (Katon, 1987; Nielsen & Williams, 1980; Perez-Stable et al., 1990). Similarly, among women with disabilities, mental health problems tend to go unrecognized and untreated (Lunsky & Benson, 2001).

Social withdrawal, a characteristic of the depressed states, may prevent depressed patients from discussing emotional problems with physicians, friends, or family (Vali & Walkup, 1998). Some individuals with intellectual disabilities have a limited capacity to express mental or emotional problems verbally, so their referral for mental health services depends largely on the ability of family members and program staff or physicians to recognize any behavioural and emotional disturbances (Borthwick-Duffy & Eyman, 1990; Branigan et al., 2001). Branigan found that only 41.8 percent of persons with disabilities were asked about emotions and only 41.3 percent were asked about sleep patterns (an indicator of possible depression) by their primary health-care providers (Branigan et al., 2001).

PREVENTATIVE HEALTH

Physical activity

Many individuals with disabilities are at above-average risk for chronic diseases such as heart disease, obesity, diabetes, and osteoporosis (LaPorte et al., 1983; Nosek, 2000; Pitetti & Tan, 1990; Rimmer, Braddock, & Fujiura, 1993; Rimmer, Braddock, & Pitetti, 1996; Walsh et al., 2001). Even moderate amounts of physical activity can prevent further loss of bodily function, reduce stress, help control blood pressure and body weight, and increase overall well-being (Compton, Eisenman, & Henderson, 1989; Janssen, van Oers, van der Woude, & Hollander, 1994; Santiago, Coyle, & Kinney, 1993; Thomas, 1999). Yet in an Ontario study, physicians asked only 38.3 percent and 35.3 percent of patients with physical disabilities about exercise and dietary practices, respectively (Branigan et al., 2001).

An American qualitative study reported that women with disabilities found sports and physical fitness rewarding because they help to enhance the sense of freedom, strength, and empowerment that may make people re-evaluate their physical capabilities and increase control over certain aspects of their lives. Furthermore, the ability to do something physical, to get out, and to be with people made them enjoy and look forward to participating in physical activities (Blinde & McCallister, 1999). A qualitative Canadian study confirmed these results (Masuda, 1999).

Physical access

A recent Ontario study showed that people with physical disabilities experience difficulties in accessing adequate and appropriate primary health-care services (Veltman et al., 2001). They often lack the opportunity to engage in preventative health-care activities, which are usually administered by health-care professionals (Masuda, 1999). The ability of disabled people to receive services in a physician's office depends on their capacity to make appointments, arrange transportation, enter the buildings/offices, use the washroom, access appropriate medical equipment, and have sufficient time with the physician (Allen & Mor, 1997; Branigan et al., 2001; Jones & Tamari, 1997; Nosek, 2000; Veltman et al., 2001). Problems with any of these facilities may discourage women from tending to health issues at an early and perhaps more easily treatable stage (Greer, 1986). One Canadian study found that many women with disabilities were declined medical care because the services could not cater to their needs (DeJong, 1997).

Common issues of access for women with disabilities may include, but are not restricted to, lack of proper ramps or wheelchair access; washrooms without bars; doors too narrow for wheelchairs; places without light strips at stairs and doors; no telecommunication devices for the deaf; no teletypewriters; lack of alternative formatted material (e.g., Braille, captioned videotapes, plain language); no provision for personal care attendants or interpreters; staff who are not knowledgeable about, trained in, or sensitive to the needs of women with disabilities; and staff who do not know how to safely handle mobility-impaired patients (DeJong, 1997; Thomas, 1999). One Canadian study suggests guidelines for access to physicians' offices (Jones & Tamari, 1997).

Privacy and autonomy

Women with disabilities are often not recognized by their health-care providers as "experts" on their own conditions or as knowledgeable partners in discussing health-care options. Women with disabilities want to play an active role in managing their condition and wish to make informed choices about their medical treatment, but they feel they are not given enough information by primary care providers to do so (Masuda, 1999). In addition, many women with disabilities have been subjected to what some have called "public stripping" — the humiliation of being forced to disrobe for educational displays in front of large groups (Gill, Kirschner, & Reis, 1994). Finally, forced sterilization, involuntary abortions, concealed contraception, and other procedures undertaken against their will deprive women with disabilities of their autonomy and their right to choose medical care (Gill, Kirschner, & Reis, 1994).

SUBPOPULATIONS

Immigrant women and women of visible minority groups

Immigrant and visible minority women with disabilities are largely underrepresented in the research literature (Ethno Racial People with Disabilities Coalition of Ontario, 1999). According to one American study, the combination of disability and minority status increases barriers to health care (Becker, Stuifbergen, & Tinkle, 1997). Minority women with disability may have increased difficulty in finding a physician, care attendant, or an interpreter who speaks the same language or is of the same cultural background to help them benefit fully from available services.

Aboriginal and First Nations women

In a study of health service delivery in Manitoba, Fricke (1998) documents the complications many First Nations people with disabilities face in finding and using health services, especially those related to their disabilities. One Saskatchewan study (Durst, Bluechart, Morin, & Rezansoff, 2001) of urban Aboriginal people with disabilities identifies many of the same themes as those outlined above with regard to health status, sexual and reproductive health, and pregnancy. It adds to the level of isolation and loneliness that many Aboriginal women with disabilities face when they have to relocate from their home communities (Durst et al., 2001).

Rural and northern women

While rural and northern Ontario residents generally experience more barriers to accessing primary health care than those living in urban centres (Buske, 2000), accessibility may be further hindered for anyone with disabilities (Lishner, Richardson, Levine, & Patrick, 1996). An American study (Omohundro, Schneider, Marr, & Grannemann, 1983) found that persons with disabilities in rural locations suffered from limited access to a range of services available in urban areas and that few sought or obtained professional help. The limited information on women with disabilities who live in rural, northern, and remote regions in Canada points to a consistent and serious neglect of the complex medical issues faced by this population.

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PART THREE: REPRODUCTIVE HEALTH

CHAPTER 13 – FERTILITY

KAREY IRON, SHERRI ENNIS, AND DOUG MANUEL

OVERVIEW

The number of births and the fertility rate rose slightly from 1986 to the early 1990s, then continued to drop to 1997. The decreases occurred because there are fewer women in their early childbearing years and fewer children born to each woman. Although most births occurred for mothers between the ages of 20 to 29 years, the rate of births to women aged 30 to 39 has increased over the past decade. During the 1990s the multiple birth rate increased, with a concurrent increase in the mid-1990s and a sharp decrease in 1997 in the overall low-birth-weight rate and the singleton low-birth-weight rate. The crude birth rate was highest around the Greater Toronto Area (GTA), owing to a large proportion of young women in that region. The highest total fertility rate (fertility adjusted for the age of women) clustered around the Central West area and up through the Bruce Peninsula. The GTA had the highest fertility rates for older women. Simcoe-York, just north of Toronto, had the highest multiple birth rate, while Toronto and Hamilton-Wentworth had the highest low-birth-weight rates overall and for single births. The northern areas of the province had the highest rates of teenage births and births to women in their early 20s. These areas also showed relatively high levels of low-birth-weight infants, except in the Northwestern District Health Council (DHC), where low-birth-weight rates were quite low.

Changes in the fertility of a population and the number of children a women has are dependent on many social and political factors. The current trend is moving well below the natural population replacement level of about two live births per woman. Nonetheless, the goal should be to ensure optimal teenage sexual health and maternal, infant, and child health through appropriate public policy and the availability of public health initiatives and specialized medical services in Ontario.

BACKGROUND/INTRODUCTION

The examination of birth and fertility trends has both social and demographic importance to the health of populations. The level of births and fertility directly affects the social and demographic makeup of a society: it is a vital factor in the natural population replacement of a society and a window into family structure and societal values. The number of children that a woman decides to have is influenced by such environmental factors as economic prosperity, work outside the home, education, and, to some extent, government support.

Demographic indicators of the women who are giving birth can sometimes be used as proxies for the state of maternal, infant, and child health and the use of health-care resources. For example, teenage births have been associated with higher pre-term deliveries, low-birth-weight (less than 2,500 mg at birth) infants, and poorer outcomes than for women in their 20s or early 30s. Women who decide to have their children in their mid- to late-30s are more likely to have high-risk pregnancies and are more apt to experience difficulties in getting pregnant. The use of fertility drugs and procedures may lead to a higher incidence of multiple births, which are more likely to be high risk than single births.

METHODS

Information on live births is collected by the Office of the Registrar General, using the birth registration form completed by parents. Data were obtained through the Ministry of Health and Long-Term Care's Provincial Health Planning Database. Live birth data were originally collected by the Office of the Registrar General under the Vital Statistics Act, RSO 1990, while population estimates used for denominators were produced by Statistics Canada. These data were obtained and analyzed by the Central East Health Information Partnership. Also used were published data from Statistics Canada (2001).

Several indicators are routinely used to describe both birth and fertility trends in a population (see Appendix A). The "crude birth rate" describes birth trends within a population and has implications for health planning and for the use of health services. The "general fertility rate" is often used to describe the overall level of fertility within a population of women aged 15 to 49 years, though it is not very meaningful as it does not take the population age structure into account. The "total fertility rate" is the number of children women will have over their lifetime, if the fertility pattern does not change over time. The total fertility rate is a useful indicator because it takes age structure into account across geographic areas. The fertility indicators and associated methodologies used for this report are consistent with those outlined in the Core Population Health Indicators for Ontario created by the Population Health Indicators Working Group. For further information, refer to www.cehip.org/apheo/Committees/indicators.htm.

INTERPRETIVE CAUTIONS

Because live birth registration is required by law, data are presumed to be complete. However, approximately one to three percent of live births are not recorded in the database because documentation from both the parents and the attending physician is not received by the Office of the Registrar General (both pieces are required for a birth to be entered in the database) (Woodward & Ardal, 2001). The birth database also does not include out-of-province births to Ontario mothers, births that would be of particular importance in border regions such as Kenora and Ottawa.

FINDINGS

TEMPORAL TRENDS

Exhibit 13-1 depicts the key fertility indicators from 1986 to 1997. The number of births in Ontario rose from about 133,000 in 1986 to over 151,000 in 1991; the number of births subsequently declined below 1986 levels in 1997. A similar trend was seen in the crude birth rate and the general fertility rate by year: they peaked in the early 1990s, then declined slowly to 1997. These patterns were largely due to the number of aging baby-boom women in the population.

A similar but less-dramatic pattern was observed for the total fertility rate. In 1986 the total fertility rate was 1.6; it peaked in 1992 to about 1.7 and dropped dramatically in 1997 to 1.5. This figure was slightly lower than the 1997 Canadian total fertility rate of 1.6 (Statistics Canada, 2001).

The multiple birth rate per 100 births has increased about 30 percent, from about 2.0 per 100 live births in 1986 to 2.6 per 100 live births in 1997. This increase was

Exhibit 13-1. Number of Live Births, Crude Birth Rate, General Fertility Rate, Total Fertility Rate, Multiple Birth Rate, Low-Birth-Weight and Single Low-Birth-Weight Rates per Population of Women Aged 15–49 by Year in Ontario, 1997

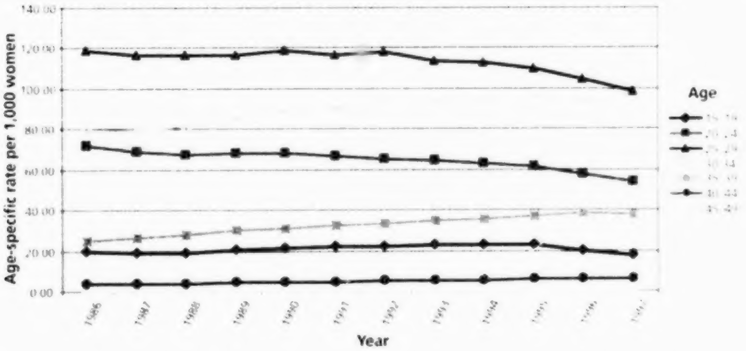
Year	Number of Live Births	Crude Birth Rate/1,000 Population	General Fertility Rate/per 1,000 Women 15–49	Total Fertility Rate	Multiple Birth Rate/100	Low-Birth-Weight Rate/100 Live Births	Single Low-Birth-Weight Rate/100 Single Live Births
1986	133,558	14.09	52.16	1.59	1.95	5.35	4.47
1987	134,266	13.86	51.23	1.57	2.04	5.39	4.51
1988	137,754	13.94	51.38	1.59	2.07	5.47	4.53
1989	145,021	14.29	52.43	1.62	2.23	5.30	4.31
1990	150,555	14.56	53.38	1.66	2.16	5.36	4.41
1991	151,159	14.50	52.60	1.67	1.96	5.56	4.65
1992	150,317	14.22	52.52	1.68	2.05	5.54	4.62
1993	147,544	13.80	51.27	1.67	2.00	5.95	5.00
1994	146,839	13.56	50.43	1.67	2.37	5.95	4.85
1995	146,036	13.32	49.66	1.67	2.40	6.04	4.96
1996	139,781	12.59	47.23	1.60	2.59	5.96	4.71
1997	132,799	11.80	44.61	1.53	2.63	5.85	4.66

Data source: Provincial Health Planning Database and Central East Health Information Partnership, 1986–97

accompanied by a slight rise in the overall low-birth-weight rate from 1986 to 1997 (5.4 per 100 live births in 1986 to 5.9 in 1997). Similarly, the low-birth-weight rate for single births also increased, from 4.5 per 100 single births in 1986 to 5.0 per 100 single births in 1993 and back down to 4.7 per 100 single births in 1997. The increase in low-birth-weight infants in Ontario is probably not solely due to an increase in multiple births, but to a contributing increase in the rate of singleton low birth weight as well. Although the rates declined slightly in 1997, the Ontario low-birth-weight rate was above those observed in many industrialized countries (World Bank, 1999).

Age-specific fertility rates by age are shown in Exhibit 13-2. For each year the highest fertility rates were seen among women aged 25 to 29 years, followed by women aged 30 to 34 years. Over the last decade, the fertility rates for women under the age of 30 years steadily declined. Conversely, the fertility rates for women aged 30 to 34 increased from 78.8 per 1,000 in 1986 to 94.4 per 1,000 in 1995; however, a slight decline towards the latter half of the decade was observed. The fertility rates for women aged 35 to 39 years steadily increased from 1986 to 1997, as did those for women aged 40 to 44 years. There were few births for women aged 45 to 49 years. The fertility rate for girls ages 15 to 19 increased from 19.6 per 1,000 in 1986 to about 22 per 1,000 in 1992. This rate remained stable until 1995 and dropped dramatically to 17.0 per 1,000 teenagers in 1997.

Exhibit 13-2. Age-Specific Fertility Rates per 1,000 Women by Year of Child's Birth in Ontario, 1986–97



Data source: Provincial Health Planning Database and Central East Health Information Partnership, 1986–97

Exhibit 13-1. **Number of Live Births, Crude Birth Rate, General Fertility Rate, Total Fertility Rate, Multiple Birth Rate, Low-Birth-Weight and Single Low-Birth-Weight Rates per Population of Women Aged 15–49 by Year in Ontario, 1997**

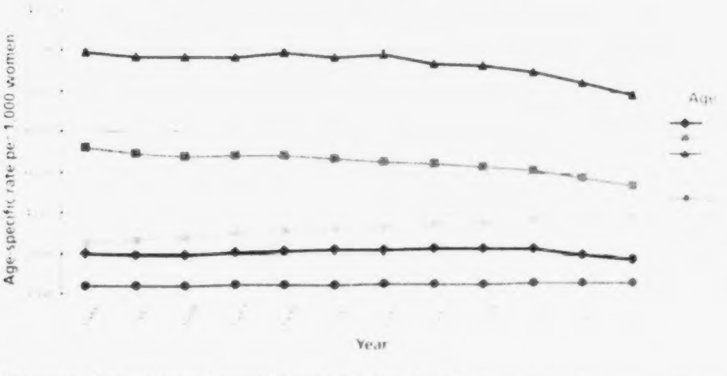
Year	Number of Live Births	Crude Birth Rate/1,000 Population	General Fertility Rate/per 1,000 Women 15–49	Total Fertility Rate	Multiple Birth Rate/100	Low Birth Weight Rate/100 Live Births	Single Low-Birth Weight Rate/100 Single Live Births
1986	133,558	14.09	52.16	1.59	1.95	5.35	4.47
1987	134,266	13.86	51.23	1.57	2.04	5.39	4.51
1988	137,754	13.94	51.38	1.59	2.07	5.47	4.53
1989	145,021	14.29	52.43	1.62	2.23	5.30	4.31
1990	150,555	14.56	53.38	1.66	2.16	5.36	4.41
1991	151,159	14.50	52.60	1.67	1.96	5.56	4.65
1992	150,317	14.22	52.52	1.68	2.05	5.54	4.62
1993	147,544	13.80	51.27	1.67	2.00	5.95	5.00
1994	146,839	13.56	50.43	1.67	2.37	5.95	4.85
1995	146,036	13.32	49.66	1.67	2.40	6.04	4.96
1996	139,781	12.59	47.23	1.60	2.59	5.96	4.71
1997	132,799	11.80	44.61	1.53	2.63	5.85	4.66

Data source: Provincial Health Planning Database and Central East Health Information Partnership, 1986–97

accompanied by a slight rise in the overall low-birth-weight rate from 1986 to 1997 (5.4 per 100 live births in 1986 to 5.9 in 1997). Similarly, the low-birth-weight rate for single births also increased, from 4.5 per 100 single births in 1986 to 5.0 per 100 single births in 1993, and back down to 4.7 per 100 single births in 1997. The increase in low-birth-weight infants in Ontario is probably not [illegible] an increase in multiple births but to a contributing increase in the [illegible] low birth weight as well. Although the rates declined slightly in 1997, the Ontario low-birth-weight rate was above those observed in many industrialized countries (World Bank, 1999).

Age-specific fertility rates by age are shown in Exhibit 13-2. [illegible] the highest fertility rates were seen among women aged 25 to 29 [illegible] women aged 30 to 34 years. Over the last decade, the fertility rates for women under the age of 30 years steadily declined. Conversely, the fertility rate for women aged 30 to 34 increased from 78.8 per 1,000 in 1986 to [illegible] per 1,000 in [illegible]; however, a slight decline [illegible] the latter half of the [illegible] observed. The fertility rate for women aged 35 to [illegible] steadily increased from [illegible] 1997, as did the [illegible] aged 40 to 44 [illegible] low-birth [illegible] to [illegible] The [illegible] from [illegible] per 1,000 [illegible] [illegible] The rate [illegible] 1997 and dropped [illegible] to [illegible] per 1,000 [illegible] in 1997.

Exhibit 13-2. **Age-Specific Fertility Rates per 1,000 Women by Year of Child's Birth in Ontario, 1986–97**



Data source: Provincial Health Planning Database and Central East Health Information Partnership, 1986–97

GEOGRAPHIC TRENDS

Exhibit 13-3 shows the number of live births and the crude, general, and total fertility rates across the 16 district health councils in Ontario in 1997. Halton-Peel had the highest crude birth rate (13.5 per 1,000 population), followed by Waterloo-Wellington-Dufferin (12.7 per 1,000) and Toronto (12.6 per 1,000 population). The lowest birth rates were in the Niagara Region and in Simcoe-York (both about 9.7 per 1,000). Crude birth rates are influenced by the proportion of young women in a population, with the areas of highest crude birth rates having the largest proportion of young women. The Grey, Bruce, Huron, Perth DHC had the highest total fertility rate (1.7 per woman), while the Champlain and the Toronto DHC areas (both at about 1.4 per woman) had the lowest total fertility rates per woman. The rest of the province hovered between 1.5 and 1.6 live births per woman.

Exhibit 13-3. **Number of Live Births, Crude, General, and Total Fertility Rates by District Health Council of Mothers' Residence in Ontario, 1997**

District Health Council	Number of Live Births	Crude Birth Rate/1,000 Population	General Fertility Rate/1,000 Women 15–19	Total Fertility Rate
Algoma, Cochrane, Manitoulin, and Sudbury	4,429	10.25	39.55	1.46
Champlain	11,573	11.11	41.49	1.43
Durham, Haliburton, Kawartha, and Pine Ridge	8,923	11.53	44.93	1.64
Essex, Kent, and Lambton	7,000	11.44	44.92	1.59
Grand River	2,497	10.81	43.48	1.64
Grey, Bruce, Huron-Perth	2,997	10.20	43.40	1.71
Halton-Peel	17,173	13.49	48.34	1.61
Hamilton-Wentworth	5,694	11.71	45.47	1.56
Muskoka, Nipissing, Parry Sound, and Timiskaming	2,110	10.06	40.31	1.47
Niagara	4,204	9.68	40.98	1.56
Northerwestern Ontario	2,987	11.75	45.75	1.64
Quinte, Kingston, Rideau	4,859	11.76	39.39	1.55
Simcoe York	11,564	9.74	43.42	1.45
Thames Valley	6,964	11.83	45.27	1.58
Toronto	31,429	12.62	45.77	1.44
Waterloo Region-Wellington-Dufferin	8,281	12.67	47.55	1.62
Out of province	1,068			
Unknown	597			

Data source: Provincial Health Planning Database and Central East Health Information Partnership, 1997

Exhibit 13-4 depicts the age-specific fertility rates by district health council in 1997. The northern areas of Ontario had the highest teenage fertility rates, with Northwestern DHC at 38.4 per 1,000 teenage women aged 15 to 19 years and the Algoma, Cochrane, Manitoulin, Sudbury DHC at 27.3 per 1,000 teenage women. The Northwestern DHC and the Muskoka, Nipissing, Parry Sound, Timiskaming DHC also had high fertility rates for women aged 20 to 25 years (87.1 and 81.5 per 1,000 women, respectively). The lowest teen rates by far were in the surrounding Greater Toronto Area (GTA): Halton-Peel (8.5 per 1,000 teenage women) and Simcoe-York (10.0 per 1,000 teenage women). These areas had the lowest rates in the 20 to 24 age range as well. The fertility rates for women aged 25 to 29 were highest in the Grey, Bruce, Huron, Perth DHC and the Grand River DHC (133.4 and 121.3 per 1,000 women aged 25 to 29 years, respectively), while the Toronto DHC,

Exhibit 13-4. Age-Specific Fertility Rate per 1,000 Women and Total Fertility Rate by District Health Council of Mothers' Residence in Ontario, 1997

	Age Group							Total Fertility Rate
District Health Council	15–19	20–24	25–29	30–34	35–39	40–44	45–49	
Algoma, Cochrane, Manitoulin, and Sudbury	27.27	71.75	104.17	65.52	19.46	3.22	0.07	1.46
Champlain	14.11	45.65	93.14	88.97	36.74	6.10	0.38	1.43
Durham, Haliburton, Kawartha, and Pine Ridge	17.51	58.67	117.91	95.11	33.74	4.58	0.18	1.64
Essex, Kent, Lambton	21.08	67.00	115.85	83.61	26.21	3.59	0.10	1.59
Grand River	23.92	72.87	121.25	79.18	26.91	3.78	0.13	1.64
Grey, Bruce, Huron-Perth	18.73	73.24	133.40	85.54	26.25	4.66	0.20	1.71
Halton-Peel	8.54	44.56	107.49	107.98	46.19	6.92	0.10	1.61
Hamilton-Wentworth	22.91	56.47	98.18	93.28	35.83	5.68	0.06	1.56
Muskoka, Nipissing, Parry Sound, and Timiskaming	23.70	81.48	117.01	67.85	20.63	2.28	0.00	1.56
Niagara	17.76	54.39	104.78	80.08	32.50	4.19	0.14	1.47
Northwestern Ontario	38.40	87.08	104.42	71.80	22.47	3.24	0.00	1.64
Quinte, Kingston, Rideau	20.88	58.75	108.58	72.25	24.95	3.72	0.11	1.45
Simcoe-York	10.03	38.38	106.40	107.92	40.92	5.84	0.18	1.55
Thames Valley	22.24	59.25	107.64	88.65	32.50	5.19	0.24	1.58
Toronto	14.52	45.54	75.16	90.82	51.57	10.57	0.52	1.44
Waterloo Region-Wellington-Dufferin	17.72	58.39	113.13	95.49	33.47	5.33	0.22	1.62

Data source: Provincial Health Planning Database and Central East Health Information Partnership, 1997.

GEOGRAPHIC TRENDS

Exhibit 13-3 shows the number of live births and the crude, general, and total fertility rates across the 16 district health councils in Ontario in 1997. Halton-Peel had the highest crude birth rate (13.5 per 1,000 population), followed by Waterloo-Wellington-Dufferin (12.7 per 1,000) and Toronto (12.6 per 1,000 population). The lowest birth rates were in the Niagara Region and in Simcoe-York (both about 9.7 per 1,000). Crude birth rates are influenced by the proportion of young women in a population, with the areas of highest crude birth rates having the largest proportion of young women. The Grey, Bruce, Huron, Perth DHC had the highest total fertility rate (1.7 per woman), while the Champlain and the Toronto DHC areas (both at about 1.4 per woman) had the lowest total fertility rates per woman. The rest of the province hovered between 1.5 and 1.6 live births per woman.

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Champlain	11,573	11.11	41.49	1.43
Durham, Haliburton, Kawartha, and Pine Ridge	8,923	11.53	44.93	1.64
Essex, Kent, and Lambton	7,000	11.44	44.92	1.59
Grand River	2,497	10.81	43.48	1.64
Grey, Bruce, Huron-Perth	2,997	10.20	43.40	1.71
Halton-Peel	17,173	13.49	48.34	1.61
Hamilton-Wentworth	5,694	11.71	45.47	1.56
Muskoka, Nipissing, Parry Sound, and Timiskaming	2,110	10.06	40.31	1.47
Niagara	4,204	9.68	40.98	1.56
Northerwestern Ontario	2,987	11.75	45.75	1.64
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Simcoe-York	11,564	9.74	43.42	1.45
Thames Valley	6,964	11.83	45.27	1.58
Toronto	31,429	12.62	45.77	1.44
Waterloo Region-Wellington-Dufferin	8,281	12.67	47.55	1.62
Out of province	1,068			
Unknown	597			

Data source: Provincial Health Planning Database and Central East Health Information Partnership, 1997

Exhibit 13-4 depicts the age-specific fertility rates by district health council in 1997. The northern areas of Ontario had the highest teenage fertility rates, with Northwestern DHC at 38.4 per 1,000 teenage women aged 15 to 19 years and the Algoma, Cochrane, Manitoulin, Sudbury DHC at 27.3 per 1,000 teenage women. The Northwestern DHC and the Muskoka, Nipissing, Parry Sound, Timiskaming DHC also had high fertility rates for women aged 20 to 25 years (87.1 and 81.5 per 1,000 women, respectively). The lowest teen rates by far were in the surrounding Greater Toronto Area (GTA): Halton-Peel (8.5 per 1,000 teenage women) and Simcoe-York (10.0 per 1,000 teenage women). These areas had the lowest rates in the 20 to 24 age range as well. The fertility rates for women aged 25 to 29 were highest in the Grey, Bruce, Huron, Perth DHC and the Grand River DHC (133.4 and 121.3 per 1,000 women aged 25 to 29 years, respectively), while the Toronto DHC,

Exhibit 13-4. Age-Specific Fertility Rate per 1,000 Women and Total Fertility Rate by District Health Council of Mothers' Residence in Ontario, 1997

	Age Group							Total Fertility Rate
District Health Council	15–19	20–24	25–29	30–34	35–39	40–44	45–49	
Algoma, Cochrane, Manitoulin, and Sudbury	27.27	71.75	104.17	65.52	19.46	3.22	0.07	1.46
Champlain	14.11	45.65	93.14	88.97	36.74	6.10	0.38	1.43
Durham, Haliburton, Kawartha, and Pine Ridge	17.51	58.67	117.91	95.11	33.74	4.58	0.18	1.64
Essex, Kent, Lambton	21.08	67.00	115.85	83.61	26.21	3.59	0.10	1.59
Grand River	23.92	72.87	121.25	79.18	26.91	3.78	0.13	1.64
Grey, Bruce, Huron-Perth	18.73	73.24	133.40	85.54	26.25	4.66	0.20	1.71
Halton-Peel	8.54	44.56	107.49	107.98	46.19	6.92	0.10	1.61
Hamilton-Wentworth	22.91	56.47	98.18	93.28	35.83	5.68	0.06	1.56
Muskoka, Nipissing, Parry Sound, and Timiskaming	23.70	81.48	117.01	67.85	20.63	2.28	0.00	1.56
Niagara	17.76	54.39	104.78	80.08	32.50	4.19	0.14	1.47
Northwestern Ontario	38.40	87.08	104.42	71.80	22.47	3.24	0.00	1.64
Quinte, Kingston, Rideau	20.88	58.75	108.58	72.25	24.95	3.72	0.11	1.45
Simcoe-York	10.03	38.38	106.40	107.92	40.92	5.84	0.18	1.55
Thames Valley	22.24	59.25	107.64	88.65	32.50	5.19	0.24	1.58
Toronto	14.52	45.54	75.16	90.82	51.57	10.57	0.52	1.44
Waterloo Region-Wellington-Dufferin	17.72	58.39	113.13	95.49	33.47	5.33	0.22	1.62

Data source: Provincial Health Planning Database and Central East Health Information Partnership, 1997 the Champlain DHC, and the Hamilton-Wentworth DHC had the lowest (75.2, 93.14, and 98.2 per 1,000 women aged 25 to 29, respectively). With increasing age over 30 years, the areas with the highest rates clustered around the GTA, while those with the lowest rates were in the northern areas of the province. For example, for women aged 35 to 39 and 40 to 44 years, the highest rates by far were seen in Toronto (51.6 and 10.6 per 1,000 women, respectively), followed by Halton-Peel in both age categories.

Exhibit 13-5 depicts the numbers and rates of single, multiple, and low-birth-weight births across district health council areas in 1997. The crude birth rate is included for comparison purposes. Across DHCs, the rate of singleton births was relatively constant at about 97 per 100 live births, though the Northwestern DHC had a slightly higher rate of 98.3 per 100 live births. However, Simcoe-York had a relatively higher rate of multiple births per 100 live births compared with the rest of the province (3.3 per 100 live births). Toronto and Hamilton-Wentworth had the highest rates of overall low-birth-weight infants (6.6 and 6.2 per 100 live births, respectively), while the Northwestern DHC and the Muskoka, Nipissing, Parry Sound, Timiskaming DHC had the lowest (3.9 and 4.9 per 100 live births, respectively). Again, Toronto had the highest rate of singleton low-birth-weight infants in the province (5.5 per 100 live births), followed by the Quinte, Kingston, Rideau DHC and the Hamilton-Wentworth DHC (4.8 per 100 live births in both areas). The Northwestern DHC, the Muskoka, Nipissing, Parry Sound, Timiskaming DHC, and the Waterloo-Wellington-Dufferin DHC had the lowest rates (3.2 and 4.1 per 100 live births, respectively, in the latter two DHC areas).

Exhibit 13-5. Number of Single, Multiple, and Low-Birth-Weight Births and Associated Rates by District Health Council of Mothers' Residence in Ontario, 1997

District Health Council	Number of Births	Number of Single Births	Number of Multiple Births	Number of Low-Birth-Weight Births	Number of Single Low-Birth-Weight Births	Crude Birth Rate/1,000 Population	Single Birth Rate/100 Live Births	Multiple Birth Rate/100 Live Births	Low-Birth-Weight Rate/100 Live Births	Single Low-Birth-Weight Rate/100 Live Births
Algoma, Cochrane, Manitoulin, and Sudbury	4,429	4,298	131	263	202	10.25	97.04	2.96	5.94	4.70
Champlain	11,573	11,240	333	681	493	11.11	97.12	2.88	5.88	4.39
Durham, Haliburton, Kawartha, and Pine Ridge	8,923	8,680	243	488	371	11.53	97.28	2.72	5.47	4.27
Essex, Kent, Lambton	7,000	6,832	168	407	334	11.44	97.60	2.40	5.81	4.89
Grand River	2,497	2,433	64	133	99	10.81	97.44	2.56	5.33	4.07
Grey, Bruce, Huron-Perth	2,997	2,931	66	161	128	10.20	97.80	2.20	5.37	4.37
Halton-Peel	17,173	16,682	491	987	739	13.49	97.14	2.86	5.75	4.43
Hamilton-Wentworth	5,694	5,538	156	352	263	11.71	97.26	2.74	6.18	4.75
Muskoka, Nipissing, Parry Sound, and Timiskaming	2,110	2,051	59	103	83	9.68	97.20	2.80	4.88	4.05
Niagara	4,204	4,081	123	234	173	10.06	97.07	2.93	5.57	4.24
Northwestern Ontario	2,987	2,936	51	117	94	11.75	98.29	1.71	3.92	3.20
Quinte, Kingston, Rideau	4,859	4,723	136	279	227	9.74	97.20	2.80	5.74	4.81
Simcoe-York	11,564	11,183	381	669	485	11.76	96.71	3.29	5.79	4.34
Thames Valley	6,964	6,802	162	383	307	11.83	97.67	2.33	5.50	4.51
Toronto	31,429	30,704	725	2,081	1,699	12.62	97.69	2.31	6.62	5.53
Waterloo Region-Wellington-Dufferin	8,281	8,083	198	426	328	12.67	97.61	2.39	5.14	4.06

Data source: Provincial Health Planning Database and Central East Health Information Partnership, 1997

Exhibit 13-5. Number of Single, Multiple, and Low-Birth-Weight Births and Associated Rates by District Health Council of Mothers' Residence in Ontario, 1997

District Health Council	Number of Births	Number of Single Births	Number of Multiple Births	Number of Low-Birth-Weight Births	Number of Single Low-Birth-Weight Births	Crude Birth Rate/1,000 Population	Single Birth Rate/100 Live Births	Multiple Birth Rate/100 Live Births	Low-Birth-Weight Rate/100 Live Births	Single Low-Birth-Weight Rate/100 Live Births
Algoma, Cochrane, Manitoulin, and Sudbury	4,429	4,298	131	263	202	10.25	97.04	2.96	5.94	4.70
Champlain	11,573	11,240	333	681	493	11.11	97.12	2.88	5.88	4.39
Durham, Haliburton, Kawartha, and Pine Ridge	8,923	8,680	243	488	371	11.53	97.28	2.72	5.47	4.27
Essex, Kent, Lambton	7,000	6,832	168	407	334	11.44	97.60	2.40	5.81	4.89
Grand River	2,497	2,433	64	133	99	10.81	97.44	2.56	5.33	4.07
Grey, Bruce, Huron-Perth	2,997	2,931	66	161	128	10.20	97.80	2.20	5.37	4.37
Halton-Peel	17,173	16,682	491	987	739	13.49	97.14	2.86	5.75	4.43
Hamilton-Wentworth	5,694	5,538	156	352	263	11.71	97.26	2.74	6.18	4.75
Muskoka, Nipissing, Parry Sound, and Timiskaming	2,110	2,051	59	103	83	9.68	97.20	2.80	4.88	4.05
Niagara	4,204	4,081	123	234	173	10.06	97.07	2.93	5.57	4.24
Northwestern Ontario	2,987	2,936	51	117	94	11.75	98.29	1.71	3.92	3.20
Quinte, Kingston, Rideau	4,859	4,723	136	279	227	9.74	97.20	2.80	5.74	4.81
Simcoe-York	11,564	11,183	381	669	485	11.76	96.71	3.29	5.79	4.34
Thames Valley	6,964	6,802	162	383	307	11.83	97.67	2.33	5.50	4.51
Toronto	31,429	30,704	725	2,081	1,699	12.62	97.69	2.31	6.62	5.53
Waterloo Region-Wellington-Dufferin	8,281	8,083	198	426	328	12.67	97.61	2.39	5.14	4.06

Data source: Provincial Health Planning Database and Central East Health Information Partnership, 1997.

Exhibit 13-6 shows the number of births and associated rates by age across Ontario in 1997. As seen previously, most of the infants in Ontario in 1997 were born to women between 25 and 34 years of age. The distribution of multiple births was normal across age, however slightly skewed towards the older ages. The singleton birth rate per 100 live births declined with age, while the multiple birth rate rose with age. The low-birth-weight rate distribution was U-shaped, with the highest rates being within the youngest and the older age ranges. The distribution of the singleton low-birth-weight rates follows the same U-shaped pattern as the overall low-birth-weight rate.

DISCUSSION

The number of births and the fertility rate rose slightly from 1986 to the early 1990s and continued to drop to 1997. The decreases occurred because there are fewer women in their early childbearing years and fewer children born to each woman. Although most births occurred for mothers between the ages of 20 and 29 years, the rate of births to women aged 30 to 39 has increased over the past decade; however, a slight decline was observed in 1997 even in women aged 30 to 34 years. Factors other than increasing age may be involved in this decline in fertility. Social and economic factors can contribute to both short- and long-term changes in the pattern of fertility. For example, women who extend their education and/or enter the workforce may delay having children, and these factors may, in turn, affect the total number of children they have. The changing education and work patterns of women over the past decade (see Chapter 1 on sociodemographics) have contributed to the decreasing total fertility rate and the increasing age-specific fertility rate of older women.

During the latter part of the 1990s the multiple birth rate increased. This increase may be due to the older age at which women are having their children. Advancing age is known to be a risk factor for infertility, and fertility drugs and other fertility interventions may increase the likelihood of multiple births. Concurrently, the overall low-birth-weight rate and the singleton low birth rate increased and then sharply decreased in 1997. Although it is encouraging to see even a slight improvement in low-birth-weight rates from the mid-1990s, this rate is higher than in some other industrialized countries.

The crude birth rate was highest around the Greater Toronto Area, owing to a greater proportion of young women. The highest total fertility rate (fertility adjusted for the age of women) clustered around the Central West area and up through the Bruce Peninsula. The GTA had the lowest total fertility rates and the highest fertility rates for older women.

Simcoe-York, just north of Toronto, had the highest multiple birth rate, while both Toronto and Hamilton-Wentworth had the highest low-birth-weight rates, overall and for single births. The reasons for this clustering are unclear. Low birth weight has been associated with teen births, births to older women, low socio-economic status, and lack of pre-natal education and support. This analysis, however, did not include socio-economic status indicators.

The north areas of the province had the highest rates of teenage births and births to women in their early 20s. These areas also showed relatively high levels of low birth weight (except in the Northwestern DHC, where low-birth-weight rates were relatively low). Although the absolute numbers of teenage births are low, these rates are a cause for concern.

Exhibit 13-6. Number of Single, Multiple, and Low-Birth-Weight Births and Associated Rates by Age of Mother at Time of Birth in Ontario, 1997

Age of Mother	Number of Births	Number of Single Births	Number of Multiple Births	Number of Low-Birth-Weight Births	Number of Single Low-Birth-Weight Births	Crude Birth Rate/ 1,000 Population	Single Birth Rate/100 Live Births	Multiple Birth Rate/100 Live Births	Low-Birth-Weight Rate/100 Live Births	Single Low-Birth-Weight Rate/100 Live Births
15–19	6,046	5,973	73	432	378	8.28	98.79	1.21	7.15	6.33
20–24	19,720	19,418	302	1,188	1,029	26.40	98.47	1.53	6.02	5.30
25–29	40,557	39,542	1,015	2,211	1,697	49.37	97.50	2.50	5.45	4.29
30–34	44,327	42,942	1,385	2,497	1,806	45.48	96.88	3.12	5.63	4.21
35–39	19,018	18,391	627	1,204	926	19.06	96.70	3.30	6.33	5.04
40–44	2,860	2,770	90	222	176	3.19	96.85	3.15	7.76	6.35
45–49	98	98	0	9	9	0.12	100.00	0.00	9.18	9.18
unknown	123	123	0	6	–	NA	100.00	0.00	4.88	–

Data source: Provincial Health Planning Database and Central East Health Information Partnership, 1997

indicates suppressed small cell count

Exhibit 13-6. Number of Single, Multiple, and Low-Birth-Weight Births and Associated Rates by Age of Mother at Time of Birth in Ontario, 1997

Age of Mother	Number of Births	Number of Single Births	Number of Multiple Births	Number of Low-Birth-Weight Births	Number of Single Low-Birth Weight Births	Crude Birth Rate/ 1,000 Population	Single Birth Rate/100 Live Births	Multiple Birth Rate/100 Live Births	Low-Birth-Weight Rate/100 Live Births	Single Low-Birth-Weight Rate/100 Live Births
15–19	6,046	5,973	73	432	378	8.28	98.79	1.21	7.15	6.33
20–24	19,720	19,418	302	1,188	1,029	26.40	98.47	1.53	6.02	5.30
25–29	40,557	39,542	1,015	2,211	1,697	49.37	97.50	2.50	5.45	4.29
30–34	44,327	42,942	1,385	2,497	1,806	45.48	96.88	3.12	5.63	4.21
35–39	19,018	18,391	627	1,204	926	19.06	96.70	3.30	6.33	5.04
40–44	2,860	2,770	90	222	176	3.19	96.85	3.15	7.76	6.35
45–49	98	98	0	9	9	0.12	100.00	0.00	9.18	9.18
unknown	123	123	0	6	–	NA	100.00	0.00	4.88	–

Data source: Provincial Health Planning Database and Central East Health Information Partnership 1997

– indicates suppressed small cell count

The fertility rates have not changed very much since the mid-1980s, but there is a declining trend across the province that is below the population replacement rate of about 2.0 children per woman. Immigration has traditionally been one way of maintaining the population at sustainable levels (see Chapter 1 on socio-demographics). Changes in the fertility of a population and the number of children a woman has are dependent on many social and political factors. The goal, however, should be to ensure optimal teenage sexual health education and maternal, infant, and child health through sound public policy, the availability of public health initiatives, and specialized medical services for families throughout Ontario.

APPENDIX A: CALCULATION OF BIRTH AND FERTILITY INDICATORS

$$\text{Crude birth rate} = \frac{\text{number of live births to a population in an area per year}}{\text{1,000 average mid-year population within an area}}$$

Low birth weight = weight at birth of <2,500g

$$\text{General fertility rate} = \frac{\text{number of live births in an area per year}}{\text{1,000 women aged 15 to 49 in an area per year}}$$

Total fertility rate = sum of age-specific fertility rates for all ages X interval into which the ages are grouped

Answers the question: How many children, on average, does a woman have?

Defined as the average number of children that would be born per woman if all women lived to the end of their childbearing years and bore children according to a given set of age-specific fertility rates.

For more information about fertility indicators, refer to www.cehip.org/apheo/Committees/indicators.htm.

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CHAPTER 14 – TEEN PREGNANCY

ENZA GUCCIARDI

BACKGROUND

Teenage pregnancy often adversely affects the health and education of the mother and the health of the newborn. Pregnant teens usually delay entry into prenatal care and have overall lower rates of prenatal care (Health Canada, 2000). Pregnancy before the age of 20 also entails a greater risk of having a baby with a low birth weight, a preterm baby, or a baby with an identifiable congenital abnormality (Fraser, Brockert, & Ward, 1995; Jacono, Jacono, St. Onge, van Oosten, & Meininger, 1992; Millar & Stephens, 1993; PHRED Partners, 2000). A second teenage birth is associated with an almost threefold risk of preterm delivery and stillbirth (Smith & Pell, 2001). Health behaviours such as substance abuse, high tobacco use, and poor diet during pregnancy, all of which can have adverse health effects on the fetus and child, are more common among teenaged mothers than among older mothers (Health Canada, 2000; Jacono et al., 1992). Pregnant teens also run a greater risk of health problems such as anemia, hypertension, renal disease, eclampsia, and depressive disorders (Turner, Grindstaff, & Phillips, 1990), and teenagers who engage in unprotected sex are at risk for sexually transmitted diseases.

Teenage pregnancy is also associated with negative economic consequences for both mother and child (Bissell, 2000). In comparison with women who delay childbearing past their teen years, women who become teen mothers are less likely to complete high school, and more likely to work at low-income jobs, experience longer periods of unemployment, and receive welfare benefits during the years following birth. They are also more likely to experience single parenthood and higher levels of poverty (Bissell, 2000; Wadhera & Strachan, 1991). One review, however, indicates that, when racial and economic variables are factored into the analysis, the negative consequences of teen pregnancy depend largely on ethno-racial background and income level rather than on maternal age at birth (Bissell, 2000). The avoidance of a teen birth may therefore not always improve future education or employment opportunities for women from disadvantaged backgrounds (Bissell, 2000).

METHODS

All teen pregnancy rates except for regional Ontario rates were obtained by our literature review using Ontario and Canadian data. Data sources used to calculate the regional rates included the statistics from the 1997 Ontario Stillbirth, Ontario Live Birth, and Therapeutic Abortions Database from the Ministry of Health and Long-Term Care and the population estimates for 1997 from the Provincial Health Planning Database and Central Health Information Partners (CHIP). Teenage pregnancy is defined as a pregnancy occurring between the ages of 15 and 19, with an outcome of a live birth, a therapeutic abortion, or a fetal loss through stillbirth or miscarriage.

FINDINGS AND DISCUSSION

RATES

Between 1991 and 1995, the teenage pregnancy rate for Ontario increased from 38.4 pregnancies per 1,000 women to 47.1 per 1,000 women (PHRED Partners, 2000). By 1997, however, the rates had decreased to 42.4 per 1,000 in Ontario. If current trends continue, Ontario may reach the objective set by the Mandatory Health Programs and Service Guidelines to reduce the rate of known pregnancies among teenage women aged 15–19 to 40 per 1,000 women by the year 2005 (Ontario Ministry of Health, 1997).

In 1997 the number of pregnancies among teenaged women in Ontario was 15,038, of which 40 percent were live births, 58 percent were aborted, and two percent were considered as fetal loss (Dryburgh, 2000). Abortions constituted the majority of teen pregnancy outcomes in 1997, a larger proportion than in other provinces and territories (Dryburgh, 2000). By contrast, in other provinces and territories, most teenage pregnancies resulted in a live birth (Dryburgh, 2000).

It appears that teenagers were more effectively protecting themselves from pregnancy in the late 1990s than they were in the early years of the decade. This decline in pregnancy rate is likely the combined effect of improvements in the availability of contraception, emergency contraception, medical abortions (for which data are unaccounted), sexuality education in the prevention of HIV/STDs and pregnancy among young people, and health-care providers' recognition of the importance of offering contraceptive advice and services to teens.

Although the rates of teen pregnancy appear to be decreasing in Ontario, many Ontario adolescents still engage in unprotected sexual intercourse. In a sample of 690 sexually active adolescent women from 21 public schools in a large Ontario city, 33 percent of adolescents aged 17 reported no use of protection (condoms, birth control pill, IUD, or diaphragm). The numbers reporting no use of protection appear to decrease in the later teenage years (Thomas, DiCenso, & Griffith, 1998).

GEOGRAPHICAL COMPARISONS

Regional

In 1997, Toronto had the highest teen pregnancy rate in Ontario (51.8 per 1,000); it was followed by northern Ontario (50.6 per 1,000) (Exhibit 14-1). The rates in Central East and Central West Ontario were below 40 per 1,000 during the same year (PHRED Partners, 2000).

Exhibit 14-1. Teen Pregnancy Rates per 100,000 Women across Ontario's Health Regions, 1997

CENTRAL EAST	CENTRAL SOUTH	CENTRAL WEST	EAST	NORTH	SOUTH WEST	TORONTO	ONTARIO
34.0	46.1	35.8	36.9	50.6	40.4	51.8	41.7

*Data sources: Ontario Stillbirth Database * Ontario Live Birth Database * Therapeutic Abortions * Population Estimates 1997, Provincial Health Planning Database, and Central Health Information Partners (CEHIP)*

** Ontario Ministry of Health and Long Term Care, 1997, and CEHIP*

Provincial

In 1997, teenage pregnancy rates tended to be higher in the North and the Prairie provinces than in other regions. The rate in the Northwest Territories was 123.3 pregnancies per 1,000 and in the Yukon and Manitoba was over 60 per 1,000

FINDINGS AND DISCUSSION

RATES

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It appears that teenagers were more effectively protecting themselves from pregnancy in the late 1990s than they were in the early years of the decade. This decline in pregnancy rate is likely the combined effect of improvements in the availability of contraception, emergency contraception, medical abortions (for which data are unaccounted), sexuality education in the prevention of HIV/STDs and pregnancy among young people, and health-care providers' recognition of the importance of offering contraceptive advice and services to teens.

Although the rates of teen pregnancy appear to be decreasing in Ontario, many Ontario adolescents still engage in unprotected sexual intercourse. In a sample of 690 sexually active adolescent women from 21 public schools in a large Ontario city, 33 percent of adolescents aged 17 reported no use of protection (condoms, birth control pill, IUD, or diaphragm). The numbers reporting no use of protection appear to decrease in the later teenage years (Thomas, DiCenso, & Griffith, 1998).

GEOGRAPHICAL COMPARISONS

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CENTRAL EAST	CENTRAL SOUTH	CENTRAL WEST	EAST	NORTH	SOUTH WEST	TORONTO	ONTARIO
34.0	46.1	35.8	36.9	50.6	40.4	51.8	41.7

Data sources: Ontario Stillbirth Database, Ontario Live Birth Database,* Therapeutic Abortions,* Population Estimates 1997, Provincial Health Planning Database, and Central Health Information Partners (CEHIP)*

** Ontario Ministry of Health and Long-Term Care, 1997, and CEHIP*

Provincial

In 1997, teenage pregnancy rates tended to be higher in the North and the Prairie provinces than in other regions. The rate in the Northwest Territories was 123.3 pregnancies per 1,000 and in the Yukon and Manitoba was over 60 per 1,000.

On the other hand, rates in Newfoundland and New Brunswick were lower than 35 per 1,000. Ontario's rate (42.4 per 1,000 women) was similar to the national rate of 42.7 per 1,000 women (Dryburgh, 2000).

International

Based on data from the Alan Guttmacher Institute, Canada's teenage pregnancy rate (live births and aborted pregnancies per 1,000 women aged 15–19) was ranked as moderate when compared to other industrialized countries in the West between 1995 to 1996 (Singh & Darroch, 2000). The Canadian teen pregnancy rate of 45 per 1,000 women was higher than rates in countries such as Australia, Iceland, Norway, Sweden, Denmark, and Finland. However, the Canadian rate remains lower than that in many countries, including England and Wales, New Zealand, and the United States (Singh & Darroch, 2000). The contrast in teenage pregnancy rates between Canada and other countries with substantially lower rates may to some extent reflect differences in public health strategies and attitudes toward sexual education and discussion.

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CHAPTER 15 – INDUCED ABORTION

KAREY IRON AND LORRAINE FERRIS

OVERVIEW

Induced abortion became a medical procedure regulated under the Canadian Health Act in 1991. Systematic reviews of the provision of abortion services in Ontario were undertaken in the late 1980s and in the early 1990s. This report extends these reviews, using the induced abortion database maintained by the Ontario Ministry of Health and Long-Term Care for the years 1994 to 1997. Overall, about 42,000 abortions were performed in each of the study years, with large variations in the age-adjusted population rates across county and across District Health Council regions. Over two-thirds of all abortions were performed in hospitals, and the remaining one-third in free-standing clinics. Virtually all late abortions (21 weeks gestational age or later) were done in hospitals. Hospitals used a wider variety of procedures than clinics. Installation methods, such as prostaglandin and saline, were still being used in hospitals, despite evidence of high complication rates associated with these procedures. Although complication rates were low overall (0.7 percent in Ontario), abortions performed in hospitals were much more likely to have complications than those done in clinics. Case-mix is an unlikely factor in early stage abortions, since the characteristics of patients attending clinics and hospitals are not dissimilar enough to account for the large differences in complication rates. A more detailed analysis is required to understand the reasons for the differences in clinic and hospital abortion outcomes. Further, more detailed data are necessary to examine the geographic variations in abortion provision and the access issues that surround abortion services in Ontario.

INTRODUCTION

In January 1988 the Supreme Court of Canada ruled that a section of the nation's abortion law infringed the guarantees under the Canadian Charter of Rights and Freedoms (*H. Morgentaler, Scott R. Smoling v. The Queen*). When the Canadian Parliament did not accept the replacement legislation in 1991, abortion became a medical procedure regulated under the Canada Health Act.

Ontario has been exemplary in its examination of the utilization and accessibility of induced abortion services. In 1987, the Ontario Ministry of Health commissioned a study to investigate provincial access to induced abortions for the period 1975 to 1985 (Powell, 1987). At that time the Canadian Criminal Code allowed qualified medical practitioners to perform abortions with prior approval by a therapeutic abortion committee at an accredited hospital. The Powell Report examined actual numbers of abortions performed in the province and barriers to service, including the referral process, and concluded that, under the existing system, Ontario women were not receiving timely and efficient services or optimal support. It stated that one in five women went outside her county of residence to obtain the procedure and that late abortions (later than 21 weeks) were performed in only eight of 42 counties in the province. As one might expect, services were more easily obtained in larger urban centres. The report stated that the lack of appropriate services within many communities and the shortage of physicians willing and trained to perform the procedure resulted in women having to incur the burden and expense of travel. It concluded that Ontario services had failed to keep pace with a trend towards outpatient care and were deficient with respect to the provision of pre- and post-operative counselling. The report further stated that pressure from anti-abortion groups and the stigma associated with abortion contributed to limiting access to services.

In 1993, the Ontario government commissioned a series of studies that examined the utilization of abortion services from 1985 to 1992. This work used a retrospective analysis of the provincial abortion database to examine complications associated with abortions and to investigate interregional variations in the utilization of abortion services (Ferris & McMain-Klein, 1995; Ferris, McMain-Klein, Colodny, Fellows, & Lamont, 1996). The opinions of abortion service delivery staff in Ontario hospitals and free-standing abortion clinics were also surveyed as part of this work (Ferris, McMain-Klein, & Iron, 1998). This research showed that most procedures were performed in hospitals. In 1992 and 1993 (the years when free-standing abortion clinics also submitted information to the database), 68 percent of the 83,469 abortions among women aged 15 to 44 years were performed in general hospitals (33 percent were performed in teaching hospitals and 35 percent in non-teaching hospitals). Approximately 94 percent of the 83,469 abortions were hospital outpatients, with only one percent resulting in a hospital stay of more than one day. The risk of immediate abortion-related complications in Ontario was less than one percent during that period. Unlike in previous studies, the woman's age, parity, and history of previous spontaneous or induced abortions were not found to be risk factors. However, advancing gestational age and procedures involving instillation of saline or prostaglandins were significant predictors of immediate complications.

For those counties whose abortion rates were the lowest, large proportions of women went outside their resident county for their abortions. The interregional variations persisted over the years (1985 to 1992), with minimal change in the relative ranking of the county-specific rates. As gestational age increased, the number of hospitals performing the procedure decreased and the variability in utilization rates by county increased. The small area variation analysis raised questions about accessibility for women residing in specific areas of the province.

This paper provides updated information on the utilization of abortion services in Ontario for the years 1994 to 1997. Unlike the earlier study, the data we were able to acquire did not contain unique patient or facility identifiers. It was therefore impossible for us to examine access or barrier issues to service provision in detail. Since there was no patient or provider identifying information, we were unable to validate the information in the database with external sources. Further, since the confidential information is provided voluntarily by physicians performing the procedure, the analyses in this report may underestimate the actual abortion rates across the province. Nevertheless, the actual numbers of procedures in the years 1994 to 1997 are higher than in earlier years, suggesting that physicians are reporting the provision of abortions. These caveats aside, the data are informative and highlight provincial and regional utilization rates, the procedures used by providers, and associated complications. Where possible, we compare these data to information gleaned from the reports from the 1990s.

DATA SOURCE

Data from 1994 to 1997 were obtained from the induced abortion database of the Ontario Ministry of Health and Long-Term Care (MOHLTC). This database includes information from the standardized case reports submitted monthly by physicians regarding the induced abortions they performed within that time frame (it does not include information about "medical abortions," which involve the use of drug combinations to terminate early pregnancies). The database consists of the following information: patient demographic and geographic information (age, marital status, county of residence); clinical information (initial and subsequent surgical procedure, gestational age at time of procedure, subsequent complications if applicable); number of days in hospital (if applicable); number of previous abortions and/or deliveries; and the type of facility where the procedure was performed (hospital or free-standing clinic). The geographic information in the database was aggregated by the county of patient residence. No patient or provider identifiers were provided.

METHODS

By convention, records for teenagers younger than 15 (0.41 percent) and women older than 44 (0.01 percent) were excluded from this analysis, as were those for women living outside Ontario (0.34 percent). The data for the four years (1994–97) were aggregated to ensure larger cell sizes and rate stability. Age was aggregated into six five-year groupings as follows: 15–19; 20–24; 25–29; 30–34; 35–39; 40–44. Four-year average age-specific abortion rates in Ontario were calculated (the number of abortions was relatively stable over the four years). The average population of women aged 15 to 44 years was derived using Statistics Canada Ontario population data for the years 1994 to 1997 as the rate denominator.

The geographic area (county) of patient residence was used to assess variations in abortion delivery across the province. Data from 49 provincial counties were aggregated into 16 district health council (DHC) areas. The Ontario DHCs are responsible for health-care planning and provision for their jurisdiction and, analytically, are large enough areas to ensure rate stability and data confidentiality. Age-standardized rates across DHCs were calculated using the 1996 Ontario population of women aged 15 to 44 as the standard population. County-level data were further aggregated into seven larger MOHLTC health-planning areas. County abortion rates within the MOHLTC planning regions were calculated for further examination of geographic variation.

Comparisons were made between procedures delivered by the different facility types (hospitals vs. free-standing abortion clinics) with respect to patient characteristics, utilization rates, procedures used, gestational age, and immediate complications. Information regarding the initial complication was used to tabulate post-procedural complications and to calculate a dichotomous variable (complication(s) or none). A post-abortion complication rate by facility type (hospital vs. clinic) and gestational age was derived. Further, the complication rate by facility and procedure type was calculated. Also examined were the actual complications by facility, procedure, and gestational age, but this information is not shown owing to the very small numbers.

INTERPRETIVE CAUTIONS

The data used in this report were collected and maintained by MOHLTC. Physicians who perform abortions anonymously submit a standard case form to MOHLTC on a monthly basis. The accuracy and completeness of the data is therefore dependent on the diligence of the physicians to submit the case forms. For past reports on abortion, a complete set of data was obtained for analysis. Because unique patient- or facility-identifying information, such as patient health card number or postal code or location of the hospital or clinic, was not provided for this report, we were not able to examine important access issues.

RESULTS

TEMPORAL AND GEOGRAPHIC TRENDS

In Ontario, 182,540 abortions were performed between 1994 and 1997. By convention, excluded from the analyses were 1,726 records due to age (0.42 percent of total records) or patient living out of province (0.34 percent). This deletion left 180,814 records for analysis, of which 63 percent and 37 percent of procedures were performed in hospitals and clinics, respectively.

Exhibit 15-1 presents information about temporal and geographic trends in Ontario and by the type of facility where the procedure was delivered. Overall, the total number of abortions was relatively stable across the years (about 25 percent per year). These numbers are similar to those found in 1992 and 1993. From 1992–93 to 1994–97 the proportion of abortions in clinics increased, while the proportion in hospitals decreased. In 1994–97 a higher proportion of abortions was performed in hospitals than in clinics across all years, although this percentage decreased steadily by year. In 1994, 66 percent were hospital abortions, dropping to 63 percent in 1995 and to 60 percent in 1997.

Exhibit 15-1. Temporal and Geographic Trends for Women Aged 15–44 Attending Clinics and Hospitals for Induced Abortion in Ontario, 1992/93 and 1994–97

Characteristics	Clinic (%)	Hospital (%)	N	% of Total N
Total, 1992/93	32.4	67.5	83,469	100.0
Total, 1994–97	37.0	63.0	180,814	100.0
Year				
1994	34.0	66.0	44,777	24.8
1995	36.9	63.1	45,734	25.3
1996	37.2	62.8	46,573	25.8
1997	39.9	60.1	43,730	24.2
Geographic Region				
Toronto	41.8	58.2	74,774	41.4
Central East	46.3	53.7	20,905	11.6
Central West	49.9	50.2	30,640	17.0
Central South	14.1	85.9	13,333	7.3
Southwest	10.0	90.1	13,908	7.7
East	34.5	65.5	18,988	10.5
North	10.2	89.8	8,266	4.6

Data source: Ministry of Health and Long-Term Care, 1992–97; Statistics Canada, 1992–97.

INTERPRETIVE CAUTIONS

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RESULTS

TEMPORAL AND GEOGRAPHIC TRENDS

In Ontario, 182,540 abortions were performed between 1994 and 1997. By convention, excluded from the analyses were 1,726 records [illegible] percent of total records, of patients living out of province [illegible] percent. This left us with 180,814 records for analysis, of which 63 percent and 37 percent of procedures were performed in hospitals and clinics respectively.

Exhibit 15-1 presents information about temporal trends [illegible] Ontario and by the region of residence where the [illegible] total number of abortions was [illegible] per year. These numbers are similar to those found in 1992 and 1993 [illegible] In 1994–97 the proportion of abortions [illegible] in hospitals decreased. In 1994–97 a higher proportion of [illegible] in hospitals than in clinics [illegible] by year. In 1994, the percentage of hospital abortions [illegible] decreasing to [illegible] percent in 1997.

Exhibit 15-1. Temporal and Geographic Trends for Women Aged 15 - 44 Attending Clinics and Hospitals for Induced Abortion in Ontario, 1992/93 and 1994–97

Characteristics	Clinic (%)	Hospital (%)	N	[illegible]
Total 1992/93	32.4	67.6	83,469	100.0
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Year				
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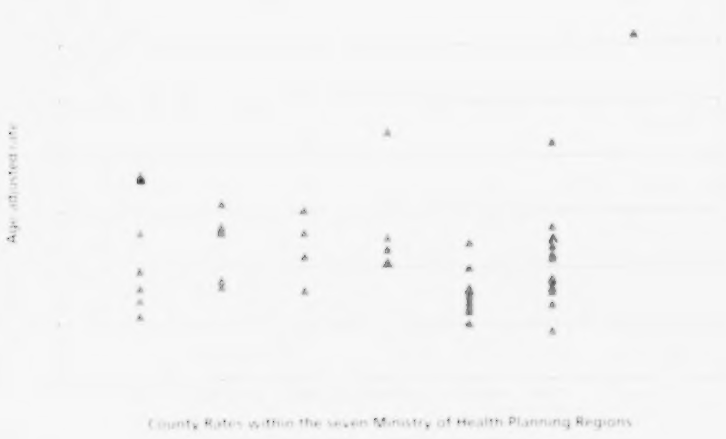
1996	37.2	62.8	46,573	[illegible]
1997	39.9	60.1	43,730	[illegible]
Geographic Region				
Toronto	41.8	58.2	74,774	[illegible]
Central East	46.3	53.7	20,905	[illegible]
Central West	49.9	50.2	30,640	[illegible]
Central South	14.1	85.9	13,333	[illegible]
Southwest	10.0	90.1	13,908	[illegible]
East	34.5	65.5	12,988	[illegible]
North	10.2	89.8	8,266	[illegible]

Data source: Ministry of Health and Long-Term Care, [illegible]

The proportion of abortions performed within MOHLTC planning regions varied, with a high of 41 percent of all Ontario abortions being performed in Metropolitan Toronto and a low of five percent in the North region. Clinics played an important role in abortion delivery in Toronto (42%), Central East (46%), and Central West (50%). The proportion of hospital abortions was dominant in the Central South (86%), Southwest (90%), and North (90%) areas of the province. We were unable to compare these data with those of 1992–93.

Exhibit 15-2 shows graphically the age-adjusted abortion rate per 10,000 by county within each MOHLTC planning region. As this figure reveals, there is inter- and intra-regional variation in the observed rates. Exhibit 15-3 shows the crude rate and ranked age-adjusted abortion rate per 10,000 females by District Health Council. Grey-Bruce had the lowest rate (69 per 10,000 population) compared to Toronto with the highest (309 per 10,000 population). The small area variations reported for previous years (Ferris & McMain, 1995) used linked hospital data since hospital identifiers were given. This difference between our current dataset and that of the previous one makes it difficult to accurately compare the study results.

Exhibit 15-2. **Age-Adjusted Induced Abortion Rates per 10,000 Women Aged 15–44 by County and Ministry of Health and Long-Term Care Planning Region in Ontario, 1994–1997**



[illegible]

Exhibit 15-3. **Ranked Four-Year Average Age-Adjusted Induced Abortion Rates per 10,000 Females Aged 15–44 by District Health Council in Ontario, 1994–97**

District Health Council	Average No. of Procedures over Four Years	Crude Rate	Age-Adjusted Rate*
Grey, Bruce, Huron, Perth	410	68.9	68.6
Algoma, Cochrane, Manitoulin, and Sudbury	916	92.9	89.9
Grand River	484	97.6	97.5
Quinte, Kingston, Rideau	1,076	102.7	103.0
Essex, Kent, and Lambton	1,453	108.4	104.2
Muskoka, Nipissing, Parry Sound, and Timiskaming	493	108.6	108.8
Northwestern Ontario	658	114.5	109.9
Thames Valley	1,515	120.7	117.9
Waterloo Region Wellington Dufferin	1,352	124.1	121.3
Niagara	1,178	133.6	132.3
Simcoe York	2,879	130.1	133.6
Durham, Haliburton, Kawartha, and Pine Ridge	2,348	137.1	142.2
Champlain	3,672	152.2	152.6
Hamilton Wentworth	1,672	154.9	152.7
Halton Peel	5,808	194.9	194.4
Toronto	18,694	316.1	308.6

Data sources: Ministry of Health and Long-Term Care and Statistics Canada, 1994–97

* All rates are significantly different from the provincial rate at p<.05

CHARACTERISTICS OF ONTARIO WOMEN HAVING ABORTIONS

Exhibit 15-4 shows the characteristics of patients accessing abortions in Ontario overall and by type of facility. The denominator for these characteristic proportions is the number of women in Ontario with that particular characteristic. In Ontario overall, over 50 percent of abortions were performed for women aged 20 to 29 years, with the proportion of abortions decreasing rapidly after the age of 29. These age trends are similar to those seen in 1992/93.

Exhibit 15-4. Characteristics of Women Aged 15–44 Attending Clinics and Hospitals for Induced Abortion in Ontario, 1992/93 and 1994–97

Characteristics	Clinic (%)	Hospital (%)	N	% of Total N 1994–97	% of Total N 1992/93
Total, 1992/93	32.4	67.5	83,469		100.0
Total, 1994–97	37.0	63.0	180,814	100.0	
Age					
15–19	38.4	61.6	33,803	18.7	18.8
20–24	38.2	61.8	52,806	29.2	30.3
25–29	37.4	62.7	40,378	22.3	24.0
30–34	35.9	64.1	30,156	16.7	16.1
35–39	33.7	66.4	18,182	10.1	8.1
40–44	31.0	69.0	5,489	3.0	2.2
Marital Status					
Not married*					76.3*
Never married	38.8	61.2	118,834	65.7	
Married/common-law	31.9	68.1	48,141	26.6	22.8
Separated/divorced/widowed	47.2	52.8	11,206	6.2	
Unknown	3.1	96.9	2,633	1.5	0.9
Previous therapeutic abortion	45.3	54.7	63,190	[illegible]	37.9
Previous delivery	35.7	64.2	84,634	[illegible]	47.0

[illegible]

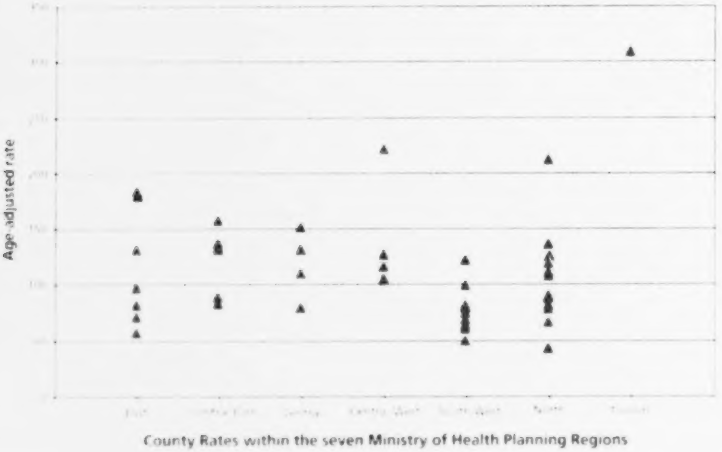
[illegible]

There was [illegible] decrease [illegible] one-third of the women [illegible] two-thirds of women having hospital abortions [illegible] reported being married or common-law. The [illegible] gap between clinics (47 [illegible]) and hospitals [illegible] widowed or divorced. [illegible] on the women having [illegible] or divorced. [illegible]

In 1994–97, [illegible] abortion and 47 percent had had [illegible] were slightly lower than in 1992/93.

The proportion of abortions performed within MOHLTC planning regions varied, with a high of 41 percent of all Ontario abortions being performed in Metropolitan Toronto and a low of five percent in the North region. Clinics played an important role in abortion delivery in Toronto (42%), Central East (46%), and Central West (50%). The proportion of hospital abortions was dominant in the Central South (86%), Southwest (90%), and North (90%) areas of the province. We were unable to compare these data with those of 1992/93.

Exhibit 15-2. **Age-Adjusted Induced Abortion Rates per 10,000 Women Aged 15–44 by County and Ministry of Health and Long-Term Care Planning Region in Ontario, 1994–1997**



Data source: Ministry of Health and Long-Term Care: 1994–97. Statistics Canada: 1994–97

Exhibit 15-2 shows graphically the age-adjusted abortion rate per 10,000 by county within each MOHLTC planning region. As this figure reveals, there is inter- and intra-regional variation in the observed rates. Exhibit 15-3 shows the crude rate and ranked age-adjusted abortion rate per 10,000 females by District Health Council. Grey-Bruce had the lowest rate (69 per 10,000 population), compared to Toronto with the highest (309 per 10,000 population). The small area variations reported for previous years (Ferris & McMain, 1995) used linked hospital data, since hospital identifiers were given. This difference between our current dataset and that of the previous one makes it difficult to accurately compare the study results.

Exhibit 15-3. **Ranked Four-Year Average Age-Adjusted Induced Abortion Rates per 10,000 Females Aged 15–44 by District Health Council in Ontario, 1994–97**

District Health Council	Average No. of Procedures over Four Years	Crude Rate	Age-Adjusted Rate*
Grey, Bruce, Huron-Perth	410	68.9	68.6
Algoma, Cochrane, Manitoulin, and Sudbury	916	92.9	89.9
Grand River	484	97.6	97.5
Quinte, Kingston, Rideau	1,076	102.7	103.0
Essex, Kent, and Lambton	1,453	108.4	104.2
Muskoka, Nipissing, Parry Sound, and Timiskaming	493	108.6	108.8
Northwestern Ontario	658	114.5	109.9
Thames Valley	1,615	120.7	117.9
Waterloo Region-Wellington-Dufferin	1,852	124.1	121.3
Niagara	1,178	133.6	132.3
Simcoe-York	2,879	130.1	133.6
Durham, Haliburton, Kawartha ,and Pine Ridge	2,348	137.1	142.2
Champlain	3,672	152.2	152.6
Hamilton-Wentworth	1,672	154.9	152.7
Halton-Peel	5,808	194.9	194.4
Toronto	18,694	316.1	308.8

Data sources: Ministry of Health and Long-Term Care and Statistics Canada, 1994–97

* *All rates are significantly different from the provincial rate at p<.01*

CHARACTERISTICS OF ONTARIO WOMEN HAVING ABORTIONS

Exhibit 15-4 shows the characteristics of patients accessing abortions in Ontario overall and by type of facility. The denominator for these characteristic proportions is the number of women in Ontario with that particular characteristic. In Ontario overall, over 50 percent of abortions were performed for women aged 20 to 29 years, with the proportion of abortions decreasing rapidly after the age of 29. These age trends are similar to those seen in 1992/93.

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Characteristics	Clinic (%)	Hospital (%)	N	% of Total N 1994–97	% of Total N 1992/93
Total, 1992/93	32.4	67.5	83,469		100.0
Total, 1994–97	37.0	63.0	180,814	100.0	
Age					
15–19	38.4	61.6	33,803	18.7	18.8
20–24	38.2	61.8	52,806	29.2	30.3
25–29	37.4	62.7	40,378	22.3	24.0
30–34	35.9	64.1	30,156	16.7	16.1
35–39	33.7	66.4	18,182	10.1	8.1
40–44	31.0	69.0	5,489	3.0	2.2
Marital Status					
Not married*					76.3*
Never married	38.8	61.2	118,834	65.7	
Married/common-law	31.9	68.1	48,141	26.6	22.8
Separated, divorced, widowed	47.2	52.8	11,206	6.2	
Unknown	3.1	96.9	2,633	1.5	0.9
Previous therapeutic abortion	45.3	54.7	63,190	35.0	37.9
Previous delivery	35.7	64.3	84,634	46.8	47.0

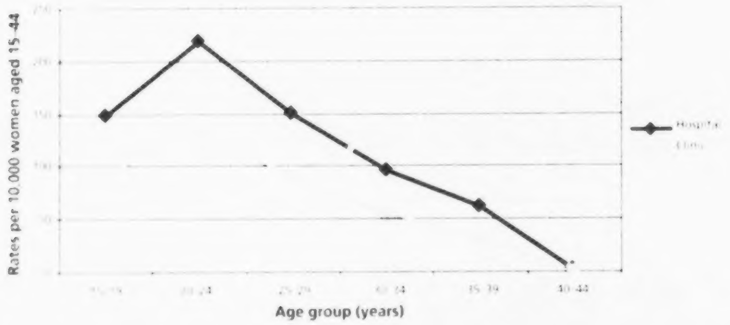
Data source: Ontario Ministry of Health and Long-Term Care, 1992/93 and 1994–97; Statistics Canada, 1992–97.

** 1992/93 data aggregated the categories of never married, separated, divorced, or widowed into [illegible]*

There was a steady increase by age in the proportions of women who had a hospital abortion (62% of women aged 15 to 19 vs. 69% of women aged 40 to 44). About two-thirds of the women who had an abortion were never married (66%). About two-thirds of women having hospital abortions versus one-third of the clinic sample reported being married or common-law. However, there was a narrowing of the gap between clinics (47%) and hospitals (53%) for women who were separated, widowed, or divorced. The reasons for this trend are unclear. In 1992/93, 76 percent of the women having an abortion were never married or separated, widowed, or divorced. This figure is comparable to the most recent data.

In 1994–97, just over one-third of the women (35%) had undergone a previous abortion and 47 percent had had a previous delivery in Ontario. These proportions were slightly lower than in 1992/93.

Exhibit 15-5. Age-Specific Induced Abortion Rates per 10,000 Women Aged 15–44 by Facility Type in Ontario, 1994–97



Data source: Ontario Ministry of Health and Long-Term Care, 1992/93 and 1994–97; Statistics Canada, 1994–97

Exhibit 15-5 shows the age-specific abortion rates per 10,000 women by age group and by facility type. Hospitals had a higher overall rate of abortion provision across all ages, with the distribution of abortions by age being similar in both hospitals and clinics.

GESTATIONAL AGE AT TIME OF ABORTION

Exhibit 15-6 depicts the gestational age at which abortions were performed across Ontario as a whole and within clinics and hospitals. Overall, about 87 percent of procedures were performed between three and 12 weeks (40% between three and eight weeks; 47% between nine and 12 weeks). The proportion of procedures decreased with increasing gestational age, with few performed after 21 weeks. These data compare favourably with those from 1992/93.

Exhibit 15-6. Gestational Age of Induced Abortion for Women Aged 15–44 Attending Clinics and Hospitals in Ontario, 1992/93 and 1994–97

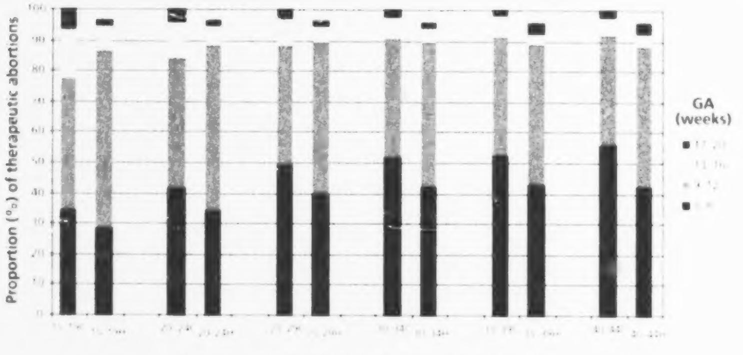
	Clinic (%)	Hospital (%)	N	% of Total N 1994–1997	% of Total 1992–1993
Total, 1992/93	32.4	67.5	83,469		100.0
Total, 1994–97	37.0	63.0	180,814	100.0	
Gestational age (wks)					
3–8	41.6	58.4	72,204	39.9	39.4 *
9–12	31.6	68.4	85,424	47.2	7.3
13–16	51.8	48.2	13,959	7.7	7.7
17–20	52.6	47.4	4,817	2.7	2.7
greater than 21	0.8	99.2	394	0.2	0.2
unknown	1.0	99.0	4,016	2.2	2.7

Data source: Ontario Ministry of Health and Long-Term Care, 1992/93 and 1994–97; Statistics Canada, 1992–97

** Includes procedures occurring 0 to 8 weeks.*

Just over half (58%) and over two-thirds (68%) of the procedures performed at three to eight weeks and nine to 12 weeks, respectively, were performed in hospitals. However, just over half of the procedures performed later (13 to 16 weeks and 17 to 20 weeks) were done in clinics. Exhibit 15-7 shows graphically the proportion of abortions by gestational age, facility type, and the women's age. The proportion of abortions performed early (three to eight weeks) increased slightly across hospitals and clinics with the increasing age of the women. At early gestational ages the proportion of abortions performed in hospitals was slightly higher than in clinics (at three to eight weeks, 42% at clinics vs. 58% at hospitals; at nine to 12 weeks, 32% at clinics vs. 68% at hospitals). The proportion of abortions performed at

Exhibit 15-7. Proportion of Induced Abortions by Gestational Age (GA) and Facility Type for Women Aged 15–44 in Ontario, 1994–97



Age group and facility type (H = hospital; C = clinic)

Data source: Ontario Ministry of Health and Long-Term Care, 1994–97; Statistics Canada, 1994–97

13 to 16 weeks and 17 to 20 weeks of gestational age was slightly higher in clinics than in hospitals (at 13 to 16 weeks, 52% at clinics vs. 48% at hospitals; at 17 to 20 weeks, 53% at clinics vs. 47% at hospitals). Hospitals almost exclusively performed procedures after 21 weeks.

Exhibit 15-8. Procedures Used for Induced Abortion for Women Aged 15–44 Attending Clinics and Hospitals in Ontario, 1992/93 and 1994–97

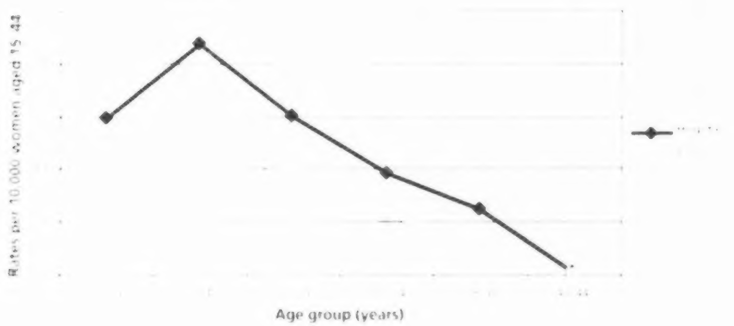
	Clinic (%)	Hospital (%)	N	% of Total N 1994–97	% of Total N 1992/93
Total, 1992/93	32.4	67.5	83,469		100.0
Total, 1994–97	37.0	63.0	180,814	100.0	
Procedure					
Suction D&C	46.6	53.4	123,404	68.3	60.9
Suction surgical D&C	0.0	99.8	11,010	6.1	5.3
Surgical D&C	0.2	99.8	436	0.2	1.0
Surgical and suction D&C	0.2	9.9	1,377	0.8	0.3
Laminaria tent and suction D&C	5.0	95.0	34,185	18.9	26.3
Laminaria tent and surgical D&C	91.0	90.3	8,385	4.6	4.9
Prostaglandin	0.0	100.0	805	0.5	0.3
Prostaglandin and laminaria tent	0.0	100.0	481	0.3	0.1
Saline	0.0	100.0	253	0.1	0.2
Other	2.7	97.3	478	0.3	0.6

Data source: Ontario Ministry of Health and Long-Term Care, 1992/93 and 1994–97

PROCEDURES

Exhibit 15-8 shows that, overall in 1994–97, suction D&C was the most common procedure used for abortion (68% of procedures), followed by laminaria tent suction D&C (19%). After 1992/93, the proportion of suction D&C increased by seven percent, while the proportion of laminaria tent suction D&C decreased by seven percent. In 1994–97 the clinics almost exclusively employed suction D&C and laminaria tent surgical D&C. The hospitals in general employed a greater variety of procedures than the clinics. Virtually all the abortions that were performed using suction surgical D&C, surgical D&C, surgical suction D&C, laminaria tent suction D&C, prostaglandin alone and with laminaria tent, saline

Exhibit 15-5. Age-Specific Induced Abortion Rates per 10,000 Women Aged 15–44 by Facility Type in Ontario, 1994–97



[illegible] 1992/93 and 1994–97; Statistics Canada 1994–97

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17–20	52.6	47.4	4,817	2.7	2.7
greater than 21	0.8	99.2	394	0.2	0.2
unknown	1.0	99.0	4,016	2.2	2.7

[illegible] 1992/93 and 1994–97; Statistics Canada 1992–97

* [illegible]

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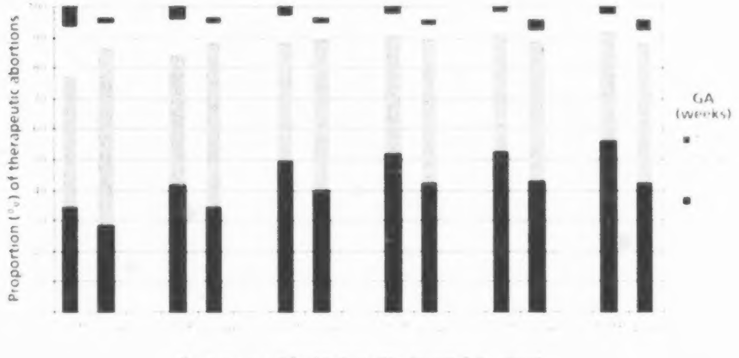

[illegible]

[illegible]

13 to 16 weeks and 17 to 20 weeks of gestational age was slightly higher in clinics than in hospitals (at 13 to 16 weeks, 52% at clinics vs. 48% at hospitals; at 17 to 20 weeks, 53% at clinics vs. 47% at hospitals). Hospitals almost exclusively performed procedures after 21 weeks.

Exhibit 15-8. Procedures Used for Induced Abortion for Women Aged 15–44 Attending Clinics and Hospitals in Ontario, 1992/93 and 1994–97

	Clinic (%)	Hospital (%)	N	% of Total N 1994–97	% of Total N 1992/93
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Procedure					
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Surgical D&C	0.2	99.8	436	0.2	1.0
Surgical and suction D&C	0.2	99.8	1,377	0.8	0.3
Laminaria tent and suction D&C	5.0	95.0	34,185	18.9	26.3
Laminaria tent and surgical D&C	91.0	90.3	8,385	4.6	4.9
Prostaglandin	0.0	100.0	805	0.4	0.2
Prostaglandin and laminaria tent	0.0	100.0	481	0.3	0.1
Saline	0.0	100.0	253	0.1	0.2
Other	2.7	97.3	478	0.3	0.6

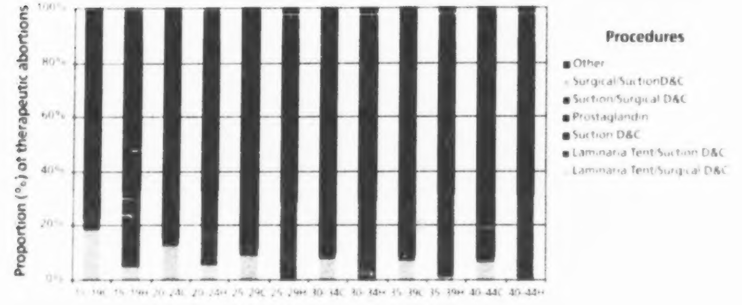
[illegible]

PROCEDURES

Exhibit 15-8 shows that overall in 1994–97 suction D&C [illegible] procedure used for abortion [illegible] percent [illegible] tion D&C (19%). After 1992/93 the proportion of suction D&C [illegible] seven percent while the proportion of laminaria tent suction D&C [illegible] seven percent. In 1994–97 the clinics almost exclusively [illegible] suction D&C and laminaria tent surgical D&C. The hospitals [illegible] variety of procedures than the clinics. Virtually all [illegible] performed using suction surgical D&C, surgical D&C, [illegible] laminaria tent suction D&C, prostaglandin alone [illegible] and other procedures were performed in hospitals. Exhibit 15-9 graphically shows the procedures used by clinics and hospitals across the age of the women who received the procedure. With increasing age, the proportion of women who received suction D&C increased, while the proportion of other procedures used decreased. In hospitals the proportion of suction D&C remained relatively stable with increasing age, though a wider variety of procedures, such as saline and prostaglandin, were introduced.

In Exhibit 15-10 the types of procedures used in clinics and hospitals by gestational age were examined. In clinics, early abortions (three to 12 weeks) were performed almost exclusively using suction D&C. However, between 13 and 16 weeks and up to 17 to 20 weeks, the proportion of cases that used laminaria tent/surgical D&C approached 80 percent, followed by laminaria tent/suction D&C (15%) and suction D&C (6%). In hospitals, abortions at three to eight weeks were predominantly performed using suction D&C (60%), laminaria tent/suction D&C (30%), and suction/surgical D&C (9%). At nine to 12 weeks, laminaria tent/surgical D&C was also used (6%). As gestational age increased, the proportion of abortions performed using the above procedures decreased while other procedures, such as surgical/suction D&C, prostaglandin, and saline, were used.

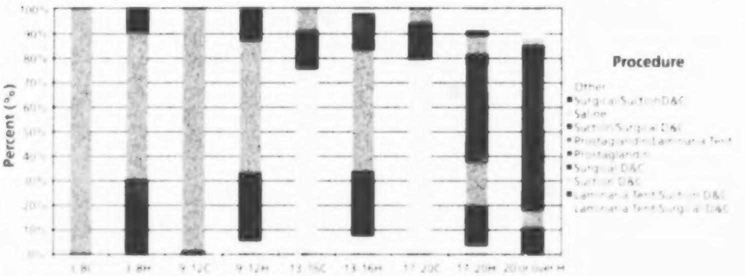
Exhibit 15-9. Proportion of Procedures Used for Induced Abortions by Age Group for Women Aged 15–44 and Facility Type in Ontario, 1994–97



Age group and facility type (C = clinic; H = hospital)

Data source: Ministry of Health and Long-Term Care, 1994–97

Exhibit 15-10. Proportion of Procedures Used for Induced Abortions for Women Aged 15–44 by Gestational Age and Facility Type in Ontario, 1994–97



Gestational age in weeks and facility type (C = clinic; H = hospital)

Data source: Ministry of Health and Long-Term Care, 1994–97

IMMEDIATE COMPLICATIONS

Complications in general were low (0.7%). Where complications existed, nine percent were in clinics and 91 percent were in hospitals. Only three percent of the total number of procedures administered required an overnight hospital stay (not shown). Of these, 83 percent stayed one night and 14 percent stayed two or three nights. About 13 percent of women who stayed in the hospital at least one night had associated complications, while over 98 percent of these women had their abortion

Exhibit 15-11. Complications after Abortions for Women Aged 15–44 Attending Clinics and Hospitals in Ontario, 1992/93 and 1994–97

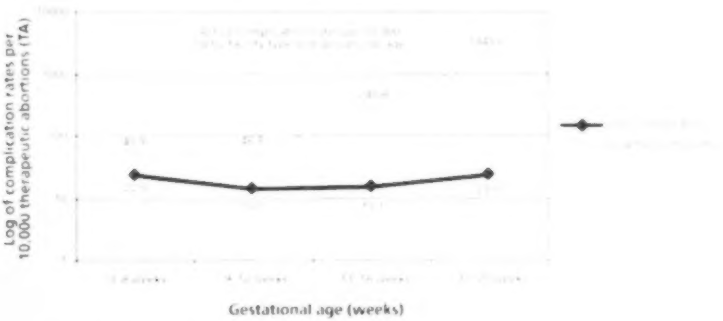
Characteristics	Clinic (%)	Hospital (%)	N	% of Total N (% of Complications)	% of Complications 1992/93
Total, 1992/93	32.4	67.5	83,469		100.0
Total, 1994–97	37.0	63.0	180,814	100.0	
Complications					
Complications present	9.4	90.6	1,296	0.7 (100.0)	0.7 *
Hemorrhage 500cc or more	7.0	93.0	128	0.1 (9.9)	12.1
Infection	10.0	90.0	70	0.0 (5.4)	4.7
Laceration of cervical wall	0.6	99.4	159	0.1 (12.3)	11.0
Perforation of uterus	14.4	85.6	90	0.1 (6.9)	4.9
Retained product of conception	10.6	89.4	720	0.4 (55.6)	54.0
Other	11.7	88.3	128	0.07 (9.9)	12.4

Data source: Ontario Ministry of Health and Long Term Care, 1992/93 and 1994–97

** of total procedures*

in a hospital. Exhibit 15-11 shows the types of complications that were observed and the relative proportions of occurrence within clinics and hospitals. In Ontario, the most common complication observed was retained products of conception (0.4% of total abortions; 55.6% of complications), followed by laceration of cervical wall (0.1% of total abortions; 12.3% of complications). Compared with 1992/93, the overall complication rate has remained stable at 0.7 percent; however, the distribution of the types of complications occurring varied slightly. Exhibit 15-12 illustrates the dramatic differences in complications between clinic and hospital procedures by gestational age. These differences have persisted since 1992/93, when the comparative complication rates between clinics and hospitals, respectively, ranged from 0.2 percent to 0.7 percent at less than nine weeks gestational age, zero percent to 12 percent from nine to 12 weeks, 0.1 percent to 7 percent from 13 to 16 weeks, 0.1 percent to 65 percent from 17 to 20 weeks, and zero percent to 67 percent at more than 20 weeks. There may be differences between the case mix of hospital and clinic patients that are not represented in this database, such that the more complicated cases are performed in hospitals. However, while case mix may help explain later stage abortions, it is probably less of a possibility for abortion performed at early gestational ages; here hospital complication rates were double those of clinics.

Exhibit 15-12. Logrithmic Representation of Complication Rates by Facility Type and Gestational Age per 10,000 Induced Abortions for Women Aged 15–44 by Gestational Age and Facility Type in Ontario, 1994–97



Data source: Ministry of Health and Long Term Care, 1994–97

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Hemorrhage 500cc or more	7.0	93.0	128	0.1 (9.9)	12.1
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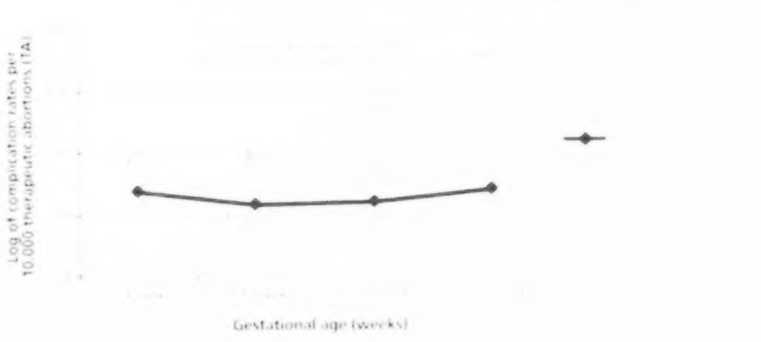

Data source: Ministry of Health and Long-Term Care, 1994–97

Exhibit 15-13. Complication Rates per 10,000 Induced Abortions for Women Aged 15–44 by Facility Type and Procedure in Ontario, 1994–97

Procedure	N Clinic Procedures	Clinic Complication Rate	N Hospital Procedures	Hospital Complication Rate	Ontario Complication Rate
Suction D&C	57,792	18.2	66,153	48.1	34.1
Surgical D&C	1	0	437	846.7	867.6
Suction/surgical D&C	3	0	11,124	29.7	29.6
Surgical/suction D&C	2	0	1,378	43.5	43.5
Laminaria tent/surgical D&C	7,680	15.6	762	13.1	15.4
Laminaria tent/suction D&C	1,752	28.5	32,656	53.3	52.0
Prostaglandin alone	0	0	811	1,911.2	1,911.2
Prostaglandin/laminaria tent	0	0	483	2,484.5	2,484.5
Saline alone	0	0	258	8,217.1	8,217.1
*Other	13	0	466	2,703.9	2,630.5

Data source: Ministry of Health and Long-Term Care, 1994–97

** Other procedures include very small numbers of hysterotomy, hysterectomy, saline & surgical D&C, saline & suction D&C, saline & urea, saline & laminaria tent, all procedures using urea, all other procedures with prostaglandin, all other procedures with laminaria tent*

Exhibit 15-13 highlights the complications per 10,000 abortions in the province, by facility and by procedure. As in 1992–93, complication rates in 1994–97 were highest after the use of prostaglandin alone (1,911 per 10,000 abortions), saline alone (2,485 per 10,000 abortions), and prostaglandin/laminaria tent and other procedures (about 2,500 per 10,000 abortions). As noted earlier, only hospitals used these procedures. In clinics the complication rate for suction D&C was 18 per 10,000 abortions, versus about 48 per 10,000 abortions by hospitals. Further, clinic complications for laminaria tent/surgical D&C were 16 per 10,000 abortions, versus 13 per 10,000 abortions by hospitals. Complications after laminaria tent/suction D&C were almost double in hospitals compared with clinics (53 vs. 28 per 10,000 abortions, respectively).

DISCUSSION

The provision of induced abortions in Ontario has not changed very much from 1992–93 through to 1997. About 40,000 procedures have been performed each year, though the proportion of procedures performed in hospitals has declined somewhat (68 percent vs. 63 percent). The reasons and implications of this decline are unclear. In Toronto, Central East, and Central West the utilization rate of clinics is about equal to that of hospitals. However, in other parts of the province, a much larger proportion of patients rely on hospital care. Without having facility identifiers, it is not possible to account for the discrepancies across the provincial regions. For example, we cannot tell the geographic distance between hospitals and free-standing abortion clinics.

The temporal and geographic trends in Ontario have remained relatively similar across the years included in this report (1994 to 1997) and in the years of the previous study years (1992 and 1993). The degree of variation in utilization rates between the DHCs is much larger than would be expected by chance alone. The examination of small area variation is not in itself a direct measure of service, but it is often used as an indicator of unequal provision across a particular system (Health Services Research Group, 1992). Although a certain amount of variation is

Exhibit 15-13. Complication Rates per 10,000 Induced Abortions for Women Aged 15–44 by Facility Type and Procedure in Ontario, 1994–97

Procedure	N Clinic Procedures	Clinic Complication Rate	N Hospital Procedures	Hospital Complication Rate	Ontario Complication Rate
Suction D&C	57,792	18.2	66,153	48.1	34.1
Surgical D&C	1	0	437	846.7	867.6
Suction/surgical D&C	3	0	11,124	29.7	29.6
Surgical/suction D&C	2	0	1,378	43.5	43.5
Laminaria tent/surgical D&C	7,680	15.6	762	13.1	15.4
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Prostaglandin alone	0	0	811	1,911.2	1,911.2
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Data source: Ministry of Health and Long-Term Care, 1994–97

** Other procedures include very small numbers of hysterotomy, hysterectomy; saline & surgical D&C; saline & suction D&C; saline & urea; saline & laminaria tent; all procedures using urea, all other procedures with prostaglandin, all other procedures with laminaria tent.*

Exhibit 15-13 highlights the complications per 10,000 abortions in the province, by facility and by procedure. As in 1992/93, complication rates in 1994–97 were highest after the use of prostaglandin alone (1,911 per 10,000 abortions), saline alone (2,485 per 10,000 abortions), and prostaglandin/laminaria tent and other procedures (about 2,500 per 10,000 abortions). As noted earlier, only hospitals used these procedures. In clinics the complication rate for suction D&C was 18 per 10,000 abortions, versus about 48 per 10,000 abortions by hospitals. Further, clinic complications for laminaria tent/surgical D&C were 16 per 10,000 abortions, versus 13 per 10,000 abortions by hospitals. Complications after laminaria tent/suction D&C were almost double in hospitals compared with clinics (53 vs. 28 per 10,000 abortions, respectively).

DISCUSSION

The provision of induced abortions in Ontario has not changed very much from 1992/93 through to 1997. About 40,000 procedures have been performed each year, though the proportion of procedures performed in hospitals has declined somewhat (68 percent vs. 63 percent). The reasons and implications of this decline are unclear. In Toronto, Central East, and Central West the utilization rate of clinics is about equal to that of hospitals. However, in other parts of the province, a much larger proportion of patients rely on hospital care. Without having facility identifiers, it is not possible to account for the discrepancies across the provincial regions. For example, we cannot tell the geographic distance between hospitals and free-standing abortion clinics.

The temporal and geographic trends in Ontario have remained relatively similar across the years included in this report (1994 to 1997) and in the years of the previous study years (1992 and 1993). The degree of variation in utilization rates between the DHCs is much larger than would be expected by chance alone. The examination of small area variation is not in itself a direct measure of service, but it is often used as an indicator of unequal provision across a particular system (Health Services Research Group, 1992). Although a certain amount of variation is

F4

expected, we do not have any reason to believe that geographic areas differ in terms of demands for abortion. Unfortunately, without hospital, patient, or provider indicators in our database, we are limited in how much we can attribute the variation to increased demand or insufficient provision in any one geographic area. We are also unable to compare the results of this study directly to those obtained in 1992/93. Also, unlike the series of studies in the 1990s, we were not able to examine whether women leave their county to obtain an abortion.

As in previous years, induced abortion is a safe procedure, with less than one percent of procedures resulting in immediate complications. In Ontario the use of suction D&C has increased from the previous study (61 percent in 1992/93; 68 percent in 1994–97). This increase may be due to the higher proportion of abortions being performed in clinics, which tend to use suction D&C. In any event, this trend is encouraging, since the use of suction D&C is associated with fewer complications than are other procedures.

Even though there has been clinical evidence against the use of instillation methods (Cates, Schulz, Grimes, & Tyler, 1977; Peterson, Berry, Grace, & Gulbranson, 1983), the proportion of abortions that used saline installation did not decrease and the proportion of prostaglandin procedures actually increased appreciably over the study periods. These two procedures, performed only in hospitals, were associated with a higher proportion of immediate complications. Unfortunately, the current study also corroborates our earlier report that suggested that abortions using these procedures were associated with increased risk of immediate complications (Ferris et al., 1996). It is unclear why hospitals still use procedures that are known to increase the risks of complications. Case-mix is an unlikely explanation, since at 17 to 20 weeks gestational age a higher proportion of abortions are performed in clinics, where relatively safe methods are used. Further, these methods are used in hospitals prior to 17 weeks, where the likelihood of case-mix being a significant factor in explaining such variation is not likely.

This report could not be as comprehensive as the earlier one because the database that was provided by the Ministry of Health and Long-Term Care did not contain unique patient, facility, or provider identifiers. We could therefore not examine important access or barrier issues to service provision in detail. We were also unable to validate the information in the database with external sources. Finally, we were unable to determine the number of early medical abortions using drug combinations, as this information is not contained in any Canadian database.

Overall, the provision of abortion services in Ontario has remained relatively stable over the past decade. Unfortunately, because of data constraints, it was impossible in this report to determine whether the service provided actually meets the needs of women across the province, and within certain geographic areas specifically. A current, detailed account of provision across the province is necessary in order to examine these important issues.

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CHAPTER 16 – HOSPITAL OBSTETRIC CARE

GEOFFREY M. ANDERSON

OVERVIEW

The great majority of women in Ontario deliver their babies in hospital, and obstetrical care accounts for a substantial component of acute hospital care. For this report, routinely collected hospital discharge abstract data for the period 1996/97 to 1999/2000 were used to examine some important aspects of hospital-based obstetrical care.

The cesarean section rate in Ontario has increased in recent years and has now returned to levels found in the mid-1980s. Cesarean section rates differ among District Health Council regions, but within regions have remained consistently high or low over time. During this period, the rates of induced labour have remained relatively stable, but their regional variations show a wider range than those found for cesarean sections. At a provincial level about three-quarters of women who have a vaginal delivery remain in hospital two days or less. The length of hospital stay also varies according to region, and the proportion of stays of two days or less decreased in the most recent year studied.

Interventions such as cesarean section and induction are part of obstetrical care, and further research is required to better understand regional variations in their use. Ascertaining the appropriate length of hospital stay for parturient women has become a policy issue in some jurisdictions, and the impact of length of stay and of the coordination of in-hospital and community-based postpartum care deserves further analysis. Hospitals could provide a focus for this research and for efforts to maintain and improve the quality of obstetrical care.

BACKGROUND

Despite increasing interest in home births, the vast majority of women choose to labour and deliver in hospital, and childbirth is the most common reason for admission to hospitals. This report provides information on three aspects of hospital-based obstetrical care: rates of cesarean section, rates of induction of labour, and length of hospital stay for women who give birth in acute-care hospitals.

A cesarean section is a surgical procedure that involves the delivery of the fetus through an incision in the uterus. The most common indications for cesarean section include breech presentation, dystocia (a difficult or prolonged labour), fetal distress, and previous cesarean section. The decision-making process in regard to cesarean section in births among women who have had a previous cesarean section involves weighing the risks that might be associated with vaginal delivery, the most serious of which is uterine rupture, against the risks of the procedure itself, which can involve morbidity for both the mother and child.

Induction of labour is the artificial initiation of labour before its spontaneous onset. There are several options for inducing labour and they can be divided into two broad categories. One category is medical induction, a technique that involves the use of agents (most commonly oxytocin) that stimulate contractions of the uterus. The other category is surgical induction by amniotomy, a technique whereby the amniotic membrane is artificially ruptured to initiate labour. Medical and surgical induction techniques are frequently used in conjunction with agents that ripen or soften the cervix. Induction of labour is indicated when the potential risks of continuing the pregnancy outweigh the benefits. The specific indications for induction include post-term pregnancy, premature rupture of the membranes, potential fetal compromise, and certain maternal medical conditions such as diabetes. The potential risks of induction include an increased incidence of cesarean section, uterine rupture, and the delivery of a preterm infant due to an incorrect estimation of fetal age.

In recent years there has been a growing interest in ascertaining the appropriate length of stay for women who deliver their babies in hospitals. The last decade has seen a concerted effort to reduce the length of hospital stay for a broad range of conditions, and obstetrical care has not been immune to these efforts. One concern with reducing the length of hospital stay is that it increases the burden placed on those who provide community-based care. If needed community care cannot be provided or if patients are discharged when they are unstable or have insufficient education for parenthood, the patients may have to be readmitted. Some research on the link between early postpartum discharge and readmission rates has been done, but the findings have been inconsistent (Braveman, Egerter, Pearl, Marchi, & Miller, 1995; Braveman, Kessel, Egerter, & Richmond, 1997). Despite the lack of definitive conclusions about the risks and benefits of short postpartum hospital stays, many jurisdictions in the United States have legislated mandatory 48-hour stays for women who have vaginal deliveries (Eaton, 2001).

This report uses the comprehensive hospital discharge abstract database collected by the Canadian Institute for Health Information (CIHI) to look at trends over time and at the variation across District Health Council regions in cesarean section rates, induction rates, and length of hospital stay for women who give birth in Ontario hospitals.

METHODS

The methods used in this report are based on the methods used in previous publications on obstetrical care by the Institute for Clinical Evaluative Sciences (ICES) (Anderson & Axcel, 1998). Women who delivered babies in Ontario acute-care hospitals were identified from the Discharge Abstract Database (DAD) provided to ICES by the Ontario Ministry of Health and Long-Term Care and collected by CIHI. The data used in this analysis cover the period fiscal 1996/97 to fiscal 1999/2000, the most recent data available.

Women who delivered babies and had either cesarean sections or inductions were identified from the DAD using Case Mix Groups (CMG) as well as diagnostic patient service and procedure codes (please refer to Appendix A for coding details).

Women who were not Ontario residents were excluded from the analysis. Counts of deliveries, cesarean sections, and inductions were calculated by fiscal year and by the District Health Council (DHC) of residence for 1999/2000, and were used to calculate rates of inductions and cesarean sections per 100 deliveries. The rates across DHC regions were adjusted for age using the age structure of the entire population of Ontario women who had delivered in Ontario hospitals in 1999/2000.

The analysis of length of hospital stay is based on the acute-care length of stay listed on the hospital discharge abstract. All women with vaginal deliveries were assigned to categories based on their length of stay for the hospitalization during which they delivered.

RESULTS

The number of in-hospital deliveries in Ontario decreased from 138,436 to 131,938 between 1996/97 and 1999/2000 (a decrease of five percent), while the number of cesarean sections increased from 25,517 to 26,349 (an increase of three percent) (Exhibit 16-1). The cesarean section rate increased from 18.4 per 100 deliveries to 20.0 per 100 deliveries (a relative increase of nine percent). The age-adjusted cesarean section rate, calculated using the cohort of women who delivered in 1996/97 as the standard population, increased from 18.4 to 19.7 per 100 deliveries (a relative increase of seven percent).

Exhibit 16-1. Trends in In-Hospital Deliveries, Cesarean Sections, and Cesarean Section Rates in Ontario, 1996/97 to 1999/2000

Year	Number of Deliveries (000s)	Number of Cesarean Sections (000s)	Cesarean Section Rate per 100 Deliveries	Age-Adjusted C-Section Rate per 100 Deliveries*
1996/97	138.4	25.5	18.4	18.4
1997/98	134.9	25.7	19.0	19.0
1998/99	132.3	25.5	19.2	19.1
1999/2000	131.9	26.3	20.0	19.7

Data source: Canadian Institutes for Health Information, 1996/97 to 1999/2000

** Using 1996/97 Ontario population as standard population.*

Cesarean section rates increased with maternal age (Exhibit 16-2): women aged 20–24 account for just over 15 percent of total deliveries and have an age-specific cesarean section rate of 15 per 100 deliveries; women 35–39 years of age also account for about 15 percent of total deliveries and these women have a cesarean section rate of 26 per 100 deliveries.

Exhibit 16-2. Age-Specific In-Hospital Deliveries, Cesarean Sections, and Cesarean Section Rates in Ontario for 1999/2000

Age in Years	Number of Deliveries	Number of Cesareans Sections	C-Section Rate per 100 Deliveries
15–19	6,315	787	12.5
20–24	20,433	2,990	14.6
25–29	39,621	7,465	18.8
30–34	42,383	8,975	21.2
35–39	19,939	5,097	25.6
40–44	3,110	980	31.5
45–55	137	54	39.4

Data source: Canadian Institutes for Health Information, 1999/2000

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40–44	3,110	981	31.5
45–55	137	54	39.4

Data source: Canadian Institutes for Health Information, 1999/2000

Exhibit 16-5. Induction Rates per 100 Deliveries in Ontario, 1996/97 to 1999/2000

Year	Induction Rate	Age-Adjusted Induction Rate*
1996/97	21.5	21.5
1997/98	22.6	22.6
1998/99	21.7	21.7
1999/2000	22.9	23.0

Data source: Canadian Institutes for Health Information, 1996/97 to 1999/2000

** Using 1996/97 Ontario population as standard population*

Exhibit 16-6. Induction Rates per 100 Deliveries by District Health Council, 1999/2000

District Health Council	%
Algoma, Cochrane, Manitoulin, and Sudbury	23.3
Champlain	34.2
Durham, Haliburton, Kawartha, and Pine Ridge	25.2
Essex, Kent, Lambton	24.5
Grand River	27.0
Grey, Bruce, Huron-Perth	18.8
Halton-Peel	20.3
Hamilton-Wentworth	22.1
Toronto	18.3
Muskoka, Nipissing, Parry Sound, and Timiskaming	19.7
Niagara	27.4
Northwestern Ontario	23.3
Quinte, Kingston, Rideau	23.9
Simcoe-York	21.7
Thames Valley	31.4
Waterloo Region-Wellington-Dufferin	19.8
Ontario provincial average	22.9

Data source: Canadian Institutes for Health Information, 1999/2000

Exhibit 16-7. Percentage of Vaginal Deliveries with a Length of Stay of One or Two Days from 1996/97 to 1999/2000

Year	Percentage of Vaginal Deliveries with a Length of Stay of one or two days
1996/97	71.6
1997/98	74.9
1998/99	77.5
1999/2000	73.1

Data source: Canadian Institutes for Health Information, 1996/97 to 1999/2000

The annual rate of inductions throughout the province varied between 1996/97 and 1999/2000, first going up, then down, and then back up again (Exhibit 16-5). The age-adjusted induction rates were very similar to the unadjusted rates. The yearly rate changes were all approximately one per 100 deliveries.

The induction rates for the residents of DHC regions in 1999/2000 varied from a low of 18 per 100 in Metropolitan Toronto to a high of 34 per 100 in Champlain (Exhibit 16-6). Five of the regions had induction rates within five percent of the provincial average of 23 per 100 deliveries, the top four regions all had induction rates of 27 per 100 deliveries or higher, and the lowest four regions all had rates of less than 20 per 100 deliveries.

The proportion of women who had an in-hospital vaginal delivery and remained in the hospital for two days or less increased steadily from 1996/97 to 1998/99 and then dropped between 1998/99 and 1999/2000 (Exhibit 16-7).

The analysis of length of hospital stay is based on the acute-care length of stay listed on the hospital discharge abstract. All women with vaginal deliveries were assigned to categories based on their length of stay for the hospitalization during which they delivered.

RESULTS

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Year	Number of Deliveries (000s)	Number of Cesarean Sections (000s)	Cesarean Section Rate per 100 Deliveries	Age-Adjusted C-Section Rate per 100 Deliveries*
1996/97	138.4	25.5	18.4	18.4
1997/98	134.9	25.7	19.0	19.0
1998/99	132.3	25.5	19.2	19.1
1999/2000	131.9	26.3	20.0	19.7

Data source: Canadian Institutes for Health Information, 1996/97 to 1999/2000

** Using 1996/97 Ontario population as standard population*

Cesarean section rates increased with maternal age (Exhibit 16-2): women aged 20–24 account for just over 15 percent of total deliveries and have an age-specific cesarean section rate of 15 per 100 deliveries; women 35–39 years of age also account for about 15 percent of total deliveries and these women have a cesarean section rate of 26 per 100 deliveries.

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40–44	3,110	981	31.5
45–55	137	54	39.4

Data source: Canadian Institutes for Health Information, 1999/2000

Exhibit 16-5. Induction Rates per 100 Deliveries in Ontario, 1996/97 to 1999/2000

Year	Induction Rate	Age-Adjusted Induction Rate*
1996/97	21.5	21.5
1997/98	22.6	22.6
1998/99	21.7	21.7
1999/2000	22.9	23.0

Data source: Canadian Institutes for Health Information, 1996/97 to 1999/2000

** Using 1996/97 Ontario population as standard population*

Exhibit 16-6. Induction Rates per 100 Deliveries by District Health Council, 1999/2000

District Health Council	%
Algoma, Cochrane, Mantoulin, and Sudbury	23.3
Champlain	34.2
Durham, Haliburton, Kawartha, and Pine Ridge	25.2
Essex, Kent, Lambton	24.5
Grand River	27.0
Grey, Bruce, Huron-Perth	18.8
Halton-Peel	20.3
Hamilton-Wentworth	22.1
Toronto	18.3
Muskoka, Nipissing, Parry Sound, and Timiskaming	19.7
Niagara	27.4
Northwestern Ontario	23.3
Quinte, Kingston, Rideau	23.9
Simcoe-York	21.7
Thames Valley	31.4
Waterloo Region-Wellington-Dufferin	19.8
Ontario provincial average	22.9

Data source: Canadian Institutes for Health Information, 1999/2000

Exhibit 16-7. Percentage of Vaginal Deliveries with a Length of Stay of One or Two Days from 1996/97 to 1999/2000

Year	Percentage of Vaginal Deliveries with a Length of Stay of one or two days
1996/97	71.6
1997/98	74.9
1998/99	77.5
1999/2000	73.1

Data source: Canadian Institutes for Health Information, 1996/97 to 1999/2000

The annual rate of inductions throughout the province varied between 1996/97 and 1999/2000, first going up, then down, and then back up again (Exhibit 16-5). The age-adjusted induction rates were very similar to the unadjusted rates. The yearly rate changes were all approximately one per 100 deliveries.

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The proportion of women who had an in-hospital vaginal delivery and remained in the hospital for two days or less increased steadily from 1996/97 to 1998/99 and then dropped between 1998/99 and 1999/2000 (Exhibit 16-7).

Exhibit 16-8. Percentage of Vaginal Deliveries with a Length of Stay of One or Two Days by District Health Council in 1999/2000

District Health Council	%
Algoma, Cochrane, Mantoulin, and Sudbury	62.2
Champlain	61.2
Durham, Haliburton, Kawartha, and Pine Ridge	71.8
Essex, Kent, Lambton	75.6
Grand River	74.2
Grey, Bruce, Huron-Perth	66.8
Halton-Peel	81.0
Hamilton-Wentworth	64.2
Toronto	79.1
Muskoka, Nipissing, Parry Sound, and Timiskaming	61.2
Niagara	65.9
Northwestern Ontario	64.4
Quinte, Kingston, Rideau	62.5
Simcoe-York	75.7
Thames Valley	72.5
Waterloo Region-Wellington-Dufferin	74.0
Ontario provincial average	73.1

Data source: Canadian Institutes for Health Information, 1999/2000

The proportion of residents of the DHC regions who had vaginal deliveries and stayed in the hospital for two days or less varied from a low of 61 percent in Champlain to a high of 81 percent in Halton-Peel (Exhibit 16-8). In all four regions with the lowest proportion of women staying two days or less, fewer than 63 percent of the women had short stays; in the four regions with the highest proportions, more than 75 percent of women had short stays.

DISCUSSION

Obstetrical care is a major component of acute hospital care in Ontario, and women admitted to Ontario hospitals for childbirth account for about one in ten of all hospital admissions in the province. The vast majority of hospitals in the province provide obstetrical care. Hospital-based obstetrical care is not as treatment-oriented as medical, surgical, and psychiatric care; its goal is to provide services to women and their families as they go through the process of labour and delivery. However, obstetrical care is affected in the same way as other aspects of hospital care by changes over time and by regional variations in the use of technology and length of stay.

The cesarean section rate in Ontario peaked at 20 per 100 deliveries in 1985/86 and then declined steadily to 17 per 100 deliveries in 1994/95 (Anderson & Axcell, 1998). Since then it has increased steadily and has now almost returned to the levels found in the mid-1980s. Cesarean section rates have been an area of research and debate for years, and although the recent increase is in part related to the older age of women giving birth, the debate continues to focus on the appropriate indications for cesarean section and on professional and patient preferences.

The extent to which the increasing cesarean section rate is a result of evidence-based changes in appropriate care, changes in professional practice, or changes in patient preferences is not clear. The Society of Obstetricians and Gynaecologists of Canada (SOGC) has over the last decade produced a series of clinical practice guidelines that review the existing research evidence and make recommendations for appropriate care.

Exhibit 16-8. Percentage of Vaginal Deliveries with a Length of Stay of One or Two Days by District Health Council in 1999/2000

District Health Council	%
Algoma, Cochrane, Mantoulin, and Sudbury	62.2
Champlain	61.2
Durham, Haliburton, Kawartha, and Pine Ridge	71.8
Essex, Kent, Lambton	75.6
Grand River	74.2
Grey, Bruce, Huron-Perth	66.8
Halton-Peel	81.0
Hamilton-Wentworth	64.2
Toronto	79.1
Muskoka, Nipissing, Parry Sound, and Timiskaming	61.2
Niagara	65.9
Northwestern Ontario	64.4
Quinte, Kingston, Rideau	62.5
Simcoe-York	75.7
Thames Valley	72.5
Waterloo Region-Wellington-Dufferin	74.0
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Data source: Canadian Institutes for Health Information, 1999/2000

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The extent to which the increasing cesarean section rate is a result of evidence-based changes in appropriate care, changes in professional practice, or changes in patient preferences is not clear. The Society of Obstetricians and Gynaecologists of Canada (SOGC) has over the last decade produced a series of clinical practice guidelines that review the existing research evidence and make recommendations for appropriate care.

Although guidelines for the diagnosis and management of dystocia (SOGC, 1995) and electronic fetal surveillance (SOGC, 1996) might be expected to reduce the cesarean section rate, they may not be fully implemented in practice. A well publicized recent study on the risks of uterine rupture during attempts at vaginal delivery after a previous cesarean section (Lydon-Rochelle, Holt, Easterling, & Martin, 2001), and the ensuing editorial comments (Greene, 2001), may increase pressure for repeat cesarean sections. Similarly, a recent Canadian-led randomized trial showed that an elective cesarean section may be the best management for breech deliveries (Hannah et al, 2000), an observation that may lead to increased cesarean section rates.

What is clear is that regional variations in cesarean section rates exist and that regions with high rates or low rates in the mid-1990s continued to have high or low rates at the end of the decade. These variations pose a challenge and an opportunity for research. The challenge is to develop a systematic way to analyze the factors that bring about regional differences in cesarean section rates; the opportunity lies in using this "natural experiment" to better understand the impact of cesarean sections on the outcomes of care.

Inductions of labour have not been as well studied or as hotly debated as cesarean sections. The analysis of obstetrical care in Ontario shows no consistent trend in induction rates over the period analyzed. There is, however, more regional variation in the use of this intervention than there is for cesarean sections. The two regions with the highest induction rates have almost double the rates found in the regions with the lowest rates. Moreover, while the variations in cesarean section rates would seem to be related, at least in part, to different qualities of care in urban and rural regions, both high and low rates of induction are found in large urban centres with teaching hospitals. More work needs to be done to investigate whether these differences are in part related to discrepancies in coding. If they are due not to coding but to varieties of practice, then research should focus on the practices leading to these differences and their impact on outcomes. Many inductions are done for post-term pregnancy, and the SOGC has developed guidelines around the management of post-term pregnancy and indications for induction (SOGC, 1997; SOGC, 2001).

Ascertaining the appropriate length of stay for women who give birth in hospital has become an important issue in the last few years as efforts in both Canada and the United States to reduce the length of hospital stay have focused on obstetrical care. The proportion of women who stayed two days or less peaked at 77.5 percent in 1998/99 before dropping back to 73.1 percent in 1999/2000. In that year one region had more than 80 percent of parturient women with short stays and another was very close to that level. At the other end of the scale, the proportion of women with short stays in several regions went almost as low as 60 percent. These data are difficult to interpret without a better understanding of the community resources available to support women and families who have short hospital stays. However, they do suggest substantial variation in the way obstetrical care is delivered and the need to evaluate the impact of short stays on both health status and patient satisfaction.

APPENDIX

The Case Mix Group (CMG) uses the most responsible International Classification of Disease diagnosis code (ICD-9) to assign discharges to categories that are related to the ICD-9 diagnostic chapters. The CMG codes 601 to 604 and 606 to 611 contain discharges that have most responsible diagnoses that are linked directly to obstetrical deliveries. These codes are divided into cases in which there was a cesarean section (i.e., CMG codes 601, 602, 603, and 604) and those where there was a vaginal delivery (i.e., CMG codes 606, 607, 608, 609, 610, and 611). Some women who deliver have a most responsible diagnosis that does not result in their cases being assigned to CMG 601 to 604 or 606 to 611. In order to identify these cases, all discharges were screened to determine if the record was outside the obstetrical care clinical category but the patient service coded on the discharge abstract was patient service 51 — obstetrics delivered. This process identified approximately 150 women a year in CMGs 600, 605, 622, 624, 750, and 901 who had delivered during the admission. These women were added to the cohort, and women in this group were identified as having had a cesarean section if the discharge abstract included a procedure code indicating that a cesarean section had been performed (i.e., procedure codes 86.0, 86.1, 86.2, 86.8, and 86.90). Women whose labour was induced were identified if the discharge abstract included a procedure code indicating that an induction had been performed (i.e., 85.01 — induction of labour by artificial rupture of membranes, 85.1 — other surgical induction of labour, 85.5 — medical induction of labour). Women who had had a previous cesarean section were identified if the discharge abstract contained the ICD-9 diagnosis of 654.2, indicating a uterine scar from previous surgery.

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CHAPTER 17 – HYSTERECTOMY

ANTONI BASINSKI

OVERVIEW

Although the rate of hysterectomy in Ontario has been declining since the 1980s, Ontario and Canadian rates are among the highest in developed countries. Large variations in the rates of hysterectomy and diversity among hysterectomy practices have been observed in the different regions of the province. Since opinion varies about whether hysterectomy is indicated for certain clinical problems, and since alternative therapies exist for these problems (Scialli, 1998), initiatives to study differing treatment patterns and recommendations for responding to observed variations have been made.

In this report, previous Institute for Clinical Evaluative Sciences (ICES) analyses that reported on trends in hysterectomy rates, and the extent of intraprovincial variation in these rates, have been updated to examine the evolution of these trends. Given the association between socioeconomic status and hysterectomy rates, additional analyses relating variations in per-capita hysterectomy rates to population-based socioeconomic indicators are also presented.

BACKGROUND

Hysterectomy is a common procedure in Ontario: approximately 20,000 hysterectomies have been performed annually in the province in the years 1992/1993 through 1999/2000.

At the time of the publication of the last ICES review of hysterectomies (Cohen & Young, 1996), hysterectomy rates were decreasing by more than four percent per year, and had decreased by 27 percent over the nine years prior to 1994/95.

While overall provincial age-adjusted rates of hysterectomy were in decline, large geographic variations in procedure rates were apparent and were not converging appreciably. In the areas with the highest rates (Nipissing/Timiskaming, Cochrane) age-standardized per-capita rates were more than double those of the area with the lowest rate (Metropolitan Toronto).

Variations in geographic rates were found to be dependent on the nature of the gynecological problem for which the procedure was done. Lowest levels of variation were found for cancer cases and fibroids, respectively. The highest variation existed for hysterectomies for relief of dysfunctional uterine bleeding (DUB) and endometriosis. In addition, the largest temporal decreases in per-capita rates of hysterectomy were observed for cases with indications where non-surgical alternatives exist (Hall & Cohen, 1994).

In addition to overall per capita rates of hysterectomy by clinical indication, additional patterns of practice are of interest. Hysterectomy by surgical approach may either be abdominal or vaginal. Since vaginal hysterectomies are associated with fewer complications and a faster recovery, and since the choice of surgical approach is often at the discretion of the surgeon, the relative proportion of hysterectomies that are performed vaginally has been used as an indicator of preferred hysterectomy practice.

Another variation in hysterectomy practice involves the decision whether to remove the cervix (in a total hysterectomy) or the ovaries and fallopian tubes (bilateral salpingo-oopherectomy or BSO). Since there may be long-term benefits in patient sexual satisfaction when the cervix is left intact, and since preservation of ovarian function is preferred for premenopausal patients, an additional indicator of preferred hysterectomy practice is the rate of total hysterectomy, or hysterectomy including BSO, among women under the age of 40 who undergo hysterectomy (lower rates preferred) (Ontario Hospital Association, Ontario Ministry of Health, & Hospital Medical Records Institute, 2001).

Numerous studies have reported a relationship between rates of hysterectomy and markers of socioeconomic status (Brett, Marsh, & Madans, 1997; Dharmalingam, Pool, & Dickson, 2000; Harlow & Barbieri, 1999; Kjerulff, Langenberg, & Guzinski, 1993; Marshall, Hardy, & Kuth, 2000). Generally, hysterectomy rates are found to be highest among groups with the lowest socioeconomic status indicators, which include factors such as income and education. For instance, in a cohort study of women in the United Kingdom, the most educated women had a lower cumulative risk of hysterectomy than their less-educated peers (Marshall, Hardy, & Kuh, 2000). In the absence of established causal relationships, speculation about the root causes of this phenomenon centres on the influence of access to information, offer of hysterectomy as the primary treatment option, access to alternative therapies, and delay in seeking health services for gynecologic problems resulting in hysterectomy as the last treatment option (Harlow & Barbieri, 1999).

In 1994, following the release of the first ICES Atlas (Cohen & Hall, 1994), senior management at the Ontario Ministry of Health and the Ontario Medical Association approved the establishment of the Ontario Provincial Working Group on Hysterectomy to identify reasons for rate variations and make recommendations based on research findings. The Final Report of the Working Group was issued in November 1997 (Ontario Provincial Working Group on Hysterectomy, 1997). The report made a number of recommendations regarding medical and public education, the development of guidelines and protocols for medical management of non-cancer gynecological problems commonly leading to hysterectomy, and quality improvement strategies, including hospital and external audits of common gynecological procedures and utilization management strategies.

In this report, we update the previous ICES analyses to the fiscal year 1999/2000 and report on additional analyses relating variations in per capita hysterectomy rates to population-based socioeconomic indicators.

METHODS

Standard population-based analyses were performed on an annual basis for the fiscal years 1992/93 through 1999/2000. Through Canadian Classification of Procedure (CCP) codes, hysterectomies were typed by surgical approach (abdominal, vaginal), extent (total, subtotal, radical), and inclusion of oopherectomy. Most responsible and additional diagnostic codes (ICD-9 codes) were grouped according to the major categories of cancer and non-cancer diagnoses. In addition, the four major non-cancer diagnostic groups (fibroids, uterovaginal prolapse, endometriosis, and dysfunctional uterine bleeding) were assigned, based on the most responsible and, possibly, additional co-morbid diagnoses. Patients were assigned to a residence geographic code using their postal code to enable population-based procedure rates to be calculated.

Three types of analyses were undertaken. First, overall Ontario trends in procedure rates were examined by diagnostic category for all years since 1992/93. Since the population is aging, inter-censal and post-censal (post-1996 census) estimates of population were used to estimate age-specific rates of hysterectomy for each diagnostic grouping. To eliminate the influence of population aging on inter-year comparisons, all Ontario rates were standardized to the 1999 estimated Ontario population for examining trend.

Second, given the relative stability found in reported rates over the most recent five years of available data and the relatively small populations in many counties, variations in county rates of hysterectomy by diagnostic groups were calculated for the most recent five years of data (1995/96 through 1999/2000). All rates were directly standardized against Ontario rates to report the county rates relative to age-adjusted Ontario per-capita rates. The range of variation in the standardized rates is expressed as a ratio of the third to the first quartile, weighted to the population size. For indicators of the relative rates of vaginal surgical approach and total hysterectomy or BSO among patients under the age of 40, the county rates were further standardized to account for variations in the relative frequency of the clinical problem for which hysterectomy was undertaken.

Finally, to examine the influence of socioeconomic factors on the incidence of hysterectomy for different diagnostic groups, an ecological analysis of the relationship between education and procedure rates was done. In this analysis, for each census subdivision (of which there are more than 850 for the province of Ontario), education was measured as the proportion of the population 15 years and older with bachelor's degree or higher. For each hysterectomy diagnostic group (e.g., cancer, endometriosis), the expected number of hysterectomy cases for that clinical diagnostic grouping was calculated based on overall Ontario age-specific rates for that diagnostic group. The census subdivisions were ordered according to the bachelor's degree attainment rate, and assigned to quintiles such that approximately 20 percent of the expected hysterectomy cases were assigned to each quintile. For each diagnostic group, the rates of hysterectomy among each quintile of census subdivisions sorted according to the education indicator were calculated relative to those rates for the entire Ontario population.

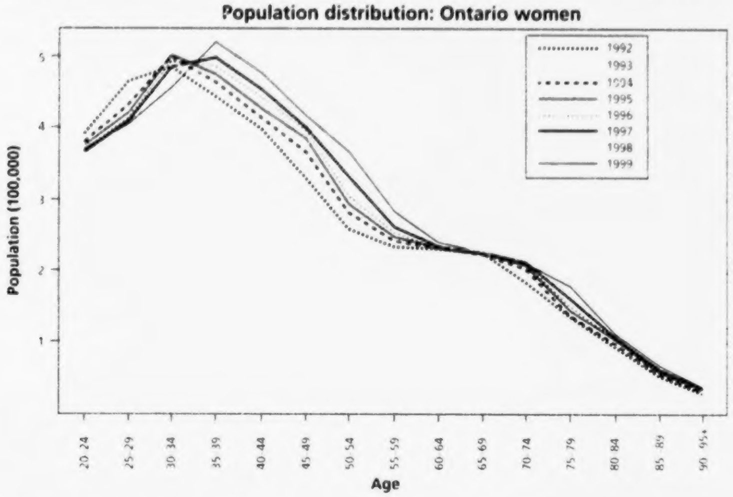
INTERPRETIVE CAUTIONS

A number of factors limit the precision of the analyses presented here. First, the quality of coding and documentation in data of hospital discharges can vary. In general, procedure codes are more accurately coded (with approximately 90 percent accuracy) than most responsible diagnosis and co-morbidity codes (with accuracies of approximately 80 percent and lower respectively) (Ontario Hospital Association, Ontario Ministry of Health, & Hospital Medical Records Institute, 1991). It is unlikely that major errors in overall procedure rates will result from procedure coding discrepancies since all possible hysterectomy codes were included in the analyses. The extent to which coding errors between hysterectomy types (e.g., approach or extent) is unknown, but again is likely to be low due to the lack of equivocal criteria in the procedure definitions. Coding of diagnostic information is more variable and may lead to misattribution of the diagnostic category in individual cases. However, given the clear and stable patterns of trend and distribution that continue to emerge in analyses of hysterectomy rates, errors in drawing tenable conclusions from the data are not a serious concern.

Given the diminished declines in hysterectomy rates and the aging of the population, minor errors in the projected post-censal Ontario adult female population (Exhibit 17-1) may influence detailed views of yearly changes in hysterectomy rates at the local level. Hence, we restrict trend views to Ontario overall.

Since the analyses of population rates of hysterectomy were based on hysterectomies among Ontario residents performed in Ontario hospitals, some underestimation of rates is likely to occur in regions where disproportionately large numbers of patients may travel outside the province for the procedure. For example, for more complex clinical services, many patients in northwestern Ontario travel to Winnipeg, Manitoba, for treatment.

Exhibit 17-1. Shift in Age of Population of Ontario Women, 1994–99



Data source: Statistics Canada, 1994 to 1999

Exhibit 17-2. Overall and Age-Specific Hysterectomy Rates per 100,000 Women Aged 20 and Over in Ontario, 1992/93–1999/2000*

Fiscal Year	Overall Rate	Age Group (years)				
		20–34	35–49	50–64	65–74	75+
1992/93	558.30	218.40	1019.80	528.80	422.20	176.30
1993/94	516.10	206.80	923.10	511.60	370.60	188.60
1994/95	494.80	186.40	869.20	497.30	398.70	211.50
1995/96	486.50	187.20	843.30	495.70	403.10	209.40
1996/97	486.30	189.60	833.40	503.60	400.20	220.50
1997/98	489.60	184.90	843.10	517.30	402.80	202.60
1998/99	470.60	166.70	804.10	503.20	390.70	235.40
1999/2000	459.90	196.90	787.90	461.00	375.80	191.80

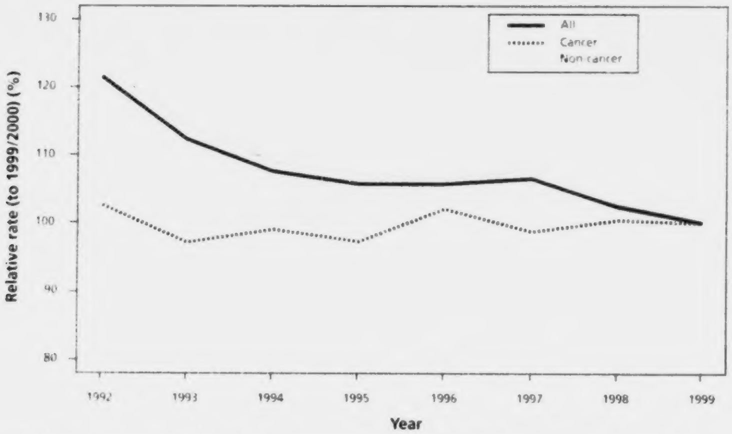
Data source Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000.

** Rates standardized to Ontario 1999 population*

FINDINGS AND DISCUSSION

The dramatic decreases in hysterectomy rates apparent at the time of the last ICES Atlas report did not continue after 1994/95 (Exhibit 17-2). The overall rates of hysterectomy plateaued until 1997/98 and began to decrease again in 1998/99. The net decrease in age-adjusted hysterectomy rates in the five years between 1994/95 and 1999/2000 was 7.1 percent (from 494.8 to 459.9 per 100,000 women 20 years and older). As reported previously, decreases in hysterectomy rates were found exclusively among non-cancer related diagnostic groups (Exhibit 17-3). The overall rate of hysterectomy for cancer-related causes was static throughout the study period at about 50 per 100,000 women 20 years and older (Exhibit 17-4). For non-cancer related causes, the overall hysterectomy rate decreased by 8.2 percent in the five years between 1994/95 and 1999/2000, from 443.5 to 407.1 per 100,000 women 20 years and older (Exhibit 17-5). When compared with the 12.2 percent decrease observed over the prior two years, from 505.1 to 443.5 between 1992/93 and 1994/95, the decline in hysterectomy rates for non-cancer related causes is far less dramatic. Unlike the situation prior to 1994/95, when the most dramatic decreases in hysterectomy rates occurred in the endometriosis and DUB diagnostic groups, decreases were relatively uniform throughout all non-cancer diagnostic categories in the most recent five years (Exhibits 17-6, 17-7).

Exhibit 17-3. Trends in Hysterectomy: Cancer and Non-Cancer-Related Cases, 1992/93–1999/2000*



Data source Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000.

** Rates standardized to Ontario 1999 population*

Exhibit 17-4. Cancer Age-Specific Hysterectomy Rates per 100,000 Women Aged 20 and Over in Ontario, 1992/93–1999/2000

		Age Group (years)				
Fiscal Year	Overall Rate	20–34	35–49	50–64	65–74	75+
1992/93	51.10	11.40	42.10	88.70	113.80	53.60
1993/94	48.40	11.70	39.50	81.40	102.70	60.10
1994/95	49.30	12.70	37.00	78.20	114.80	70.30
1995/96	48.50	12.50	38.70	81.80	101.20	62.90
1996/97	50.80	11.60	37.80	86.80	107.80	75.70
1997/98	49.20	11.20	35.80	85.90	106.50	69.90
1998/99	50.00	8.30	38.50	82.50	107.40	85.00
1999/2000	49.80	10.00	36.00	92.30	107.90	63.70

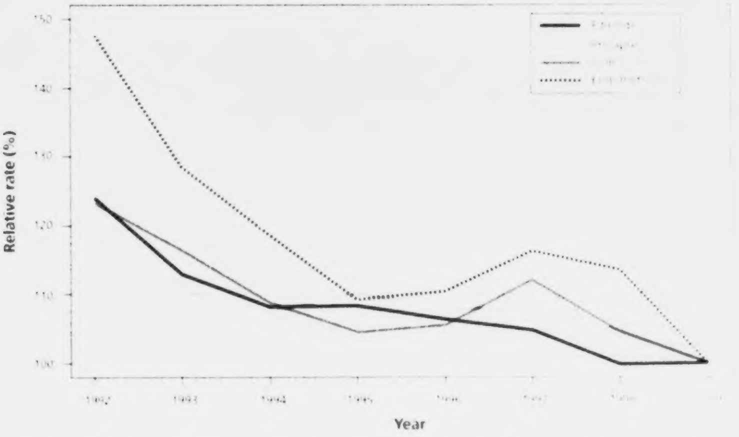
Data sources: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

Exhibit 17-5. Age-Specific Hysterectomy Rates per 100,000 Women Aged 20 and Over in Ontario, 1992/93–1999/2000, Excluding Cancer and Pregnancy-Related Causes

		Age Group (years)				
Fiscal Year	Overall Rate	20–34	35–49	50–64	65–74	75+
1992/93	505.10	205.10	975.50	438.90	305.30	120.40
1993/94	465.80	193.20	881.50	428.70	265.20	127.00
1994/95	443.50	172.20	830.30	417.50	280.90	138.20
1995/96	436.30	172.80	803.10	413.10	298.40	144.60
1996/97	433.70	176.70	793.30	414.90	290.60	143.90
1997/98	438.60	171.80	805.50	430.20	293.60	131.60
1998/99	418.40	155.60	763.40	418.80	281.10	148.80
1999/2000	407.10	182.50	749.70	366.10	264.70	126.00

Data source: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

Exhibit 17-6. Trends in Non-Cancer-Related Hysterectomy Rates in Women Aged 20 and Over in Ontario, 1992/93–1999/2000*



Data source: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

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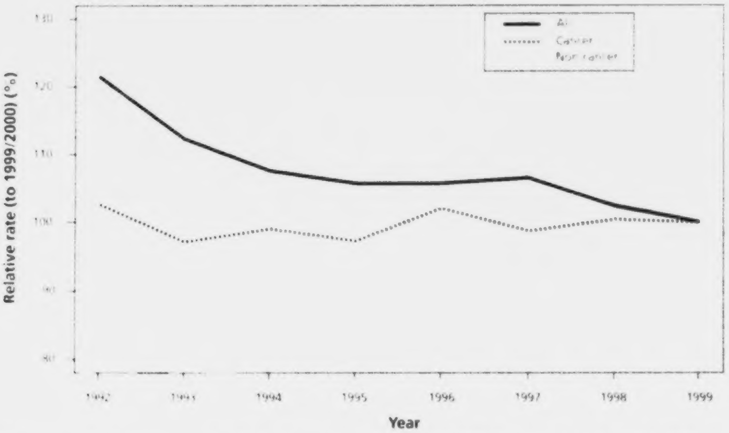


Data source: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

** Rates standardized to Ontario 1999 population*

Exhibit 17-4. Cancer Age-Specific Hysterectomy Rates per 100,000 Women Aged 20 and Over in Ontario, 1992/93–1999/2000

		Age Group (years)				
Fiscal Year	Overall Rate	20–34	35–49	50–64	65–74	75+
1992/93	51.10	11.40	42.10	88.70	113.80	53.60
1993/94	48.40	11.70	39.50	81.40	102.70	60.10
1994/95	49.30	12.70	37.00	78.20	114.80	70.30
1995/96	48.50	12.50	38.70	81.80	101.20	62.90
1996/97	50.80	11.60	37.80	86.80	107.80	75.70
1997/98	49.20	11.20	35.80	85.90	106.50	69.90
1998/99	50.00	8.30	38.50	82.50	107.40	85.00
1999/2000	49.80	10.00	36.00	92.30	107.90	63.70

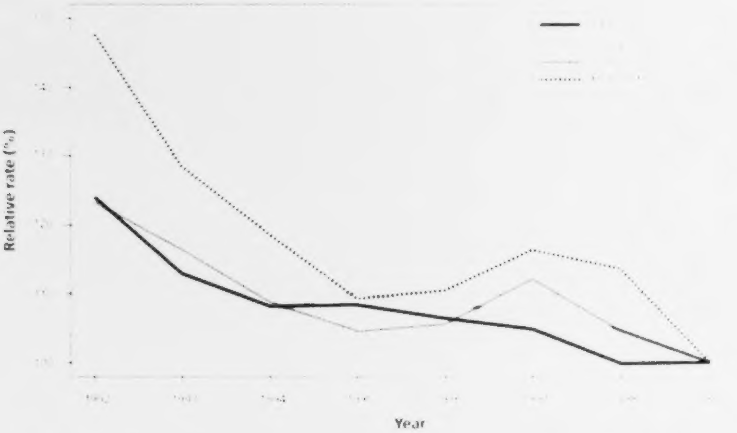
Data sources: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

Exhibit 17-5. Age-Specific Hysterectomy Rates per 100,000 Women Aged 20 and Over in Ontario, 1992/93–1999/2000, Excluding Cancer and Pregnancy-Related Causes

		Age Group (years)				
Fiscal Year	Overall Rate	20–34	35–49	50–64	65–74	75+
1992/93	505.10	205.10	975.50	438.90	305.30	120.40
1993/94	465.80	193.20	881.50	428.70	265.20	127.00
1994/95	443.50	172.20	830.30	417.50	280.90	138.20
1995/96	436.30	172.80	803.10	413.10	298.40	144.60
1996/97	433.70	176.70	793.30	414.90	290.60	143.90
1997/98	438.60	171.80	805.50	430.20	293.60	131.60
1998/99	418.40	155.60	763.40	418.80	281.10	148.80
1999/2000	407.10	182.50	749.70	366.10	264.70	126.00

Data source: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

Exhibit 17-6. Trends in Non-Cancer-Related Hysterectomy Rates in Women Aged 20 and Over in Ontario, 1992/93–1999/2000*



Data source: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

** Rates standardized to Ontario 1999 population*

Exhibit 17-7. Age-Specific Hysterectomy Rates per 100,000 Women Aged 20 and Over in Ontario, 1992/93–1999/2000 by Non-Cancerous Clinical Problem

	Clinical Problem			
Fiscal Year	Fibroids	Prolapse	DUB	Endometriosis
1992/93	167.2	80.0	119.7	58.1
1993/94	152.3	76.1	112.9	50.5
1994/95	145.9	74.0	105.6	46.7
1995/96	146.2	75.8	101.4	42.9
1996/97	143.5	74.5	102.6	43.4
1997/98	141.5	73.9	108.8	45.7
1998/99	134.7	72.2	101.5	40.7
1999/2000	134.9	68.9	97.1	39.3

Data sources: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

DUB: dysfunctional uterine bleeding

Exhibit 17-8. Proportion of Vaginal Hysterectomies for Non-Cancer Causes by Age Group

		Age Group (years)				
Fiscal Year	Overall Rate	20–34	35–49	50–64	65–74	75+
1992/93	0.22	0.20	0.15	0.30	0.62	0.63
1993/94	0.27	0.27	0.20	0.33	0.64	0.72
1994/95	0.30	0.32	0.23	0.34	0.63	0.67
1995/96	0.33	0.34	0.26	0.38	0.67	0.74
1996/97	0.32	0.35	0.25	0.34	0.63	0.69
1997/98	0.31	0.35	0.25	0.33	0.62	0.67
1998/99	0.31	0.36	0.24	0.33	0.58	0.62
1999/2000	0.30	0.32	0.23	0.35	0.60	0.64

Data source: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

Prior to 1994/95, an increasing proportion of hysterectomies were performed vaginally, an approach associated with fewer complications. In the five years since 1994/95, the rates of hysterectomy by vaginal approach remained unchanged at approximately 30 percent overall (Exhibit 17-8). In addition, the age specific proportions of vaginal hysterectomies were stable throughout the last five years. The proportion of vaginal hysterectomy was stable throughout the most recent five-year period for all non-cancer causes (Exhibit 17-9).

Exhibit 17-9. Proportion of Vaginal Hysterectomies by Non-Cancer Cause

		Clinical Problem			
Fiscal Year	Overall	Fibroids	Prolapse	DUB	Endometriosis
1992/93	0.22	0.07	0.79	0.19	0.10
1993/94	0.27	0.10	0.82	0.28	0.13
1994/95	0.30	0.13	0.82	0.30	0.18
1995/96	0.33	0.15	0.88	0.34	0.20
1996/97	0.32	0.13	0.84	0.34	0.20
1997/98	0.31	0.13	0.84	0.33	0.19
1998/99	0.31	0.13	0.83	0.33	0.19
1999/2000	0.30	0.12	0.84	0.33	0.17

Data source: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

The percentage of hysterectomies that were total or included oopherectomy was also in decline until 1994/95, especially among the youngest age groups (under 40 years). The rates achieved in 1994/95 (approximately 70 percent overall and among younger patients) have not changed appreciably in subsequent years (Exhibit 17-10).

Exhibit 17-10. Percentage of Hysterectomies for Non-Cancer Causes that are Total or Include Oopherectomy

		Age Group				
Fiscal Year	Overall Rate	20–39	40–49	50–64	65–74	75+
1992/93	79.0	81.6	86.9	72.0	41.7	40.0
1993/94	74.3	75.5	81.8	71.1	38.7	30.8
1994/95	71.0	70.2	78.3	70.7	40.2	35.3
1995/96	68.7	68.0	75.6	69.9	39.5	33.5
1996/97	69.8	67.6	76.8	72.0	43.1	36.3
1997/98	69.3	66.5	75.4	73.4	42.6	37.7
1998/99	69.5	66.4	75.7	72.7	46.2	41.3
1999/2000	69.8	67.4	76.5	71.3	45.3	40.5

Data source: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

Exhibit 17-7. Age-Specific Hysterectomy Rates per 100,000 Women Aged 20 and Over in Ontario, 1992/93–1999/2000 by Non-Cancerous Clinical Problem

	Clinical Problem			
Fiscal Year	Fibroids	Prolapse	DUB	Endometriosis
1992/93	167.2	80.0	119.7	58.1
1993/94	152.3	76.1	112.9	50.5
1994/95	145.9	74.0	105.6	46.7
1995/96	146.2	75.8	101.4	42.9
1996/97	143.5	74.5	102.6	43.4
1997/98	141.5	73.9	108.8	45.7
1998/99	134.7	72.2	101.5	40.7
1999/2000	134.9	68.9	97.1	39.3

Data sources: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000.

DUB: dysfunctional uterine bleeding

Exhibit 17-8. Proportion of Vaginal Hysterectomies for Non-Cancer Causes by Age Group

		Age Group (years)				
Fiscal Year	Overall Rate	20–34	35–49	50–64	65–74	75+
1992/93	0.22	0.20	0.15	0.30	0.62	0.63
1993/94	0.27	0.27	0.20	0.33	0.64	0.72
1994/95	0.30	0.32	0.23	0.34	0.63	0.67
1995/96	0.33	0.34	0.26	0.38	0.67	0.74
1996/97	0.32	0.35	0.25	0.34	0.63	0.69
1997/98	0.31	0.35	0.25	0.33	0.62	0.67
1998/99	0.31	0.36	0.24	0.33	0.58	0.62
1999/2000	0.30	0.32	0.23	0.35	0.60	0.64

Data source: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000.

Prior to 1994/95, an increasing proportion of hysterectomies were performed vaginally, an approach associated with fewer complications. In the five years since 1994/95, the rates of hysterectomy by vaginal approach remained unchanged at approximately 30 percent overall (Exhibit 17-8). In addition, the age-specific proportions of vaginal hysterectomies were stable throughout the last five years. The proportion of vaginal hysterectomy was stable throughout the most recent five-year period for all non-cancer causes (Exhibit 17-9).

Exhibit 17-9. Proportion of Vaginal Hysterectomies by Non-Cancer Cause

		Clinical Problem			
Fiscal Year	Overall	Fibroids	Prolapse	DUB	Endometriosis
1992/93	0.22	0.07	0.79	0.19	0.10
1993/94	0.27	0.10	0.82	0.28	0.13
1994/95	0.30	0.13	0.82	0.30	0.18
1995/96	0.33	0.15	0.88	0.34	0.20
1996/97	0.32	0.13	0.84	0.34	0.20
1997/98	0.31	0.13	0.84	0.33	0.19
1998/99	0.31	0.13	0.83	0.33	0.19
1999/2000	0.30	0.12	0.84	0.33	0.17

Data source: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

The percentage of hysterectomies that were total or included oopherectomy was also in decline until 1994/95, especially among the youngest age groups (under 40 years). The rates achieved in 1994/95 (approximately 70 percent overall and among younger patients) have not changed appreciably in subsequent years (Exhibit 17-10).

Exhibit 17-10. Percentage of Hysterectomies for Non-Cancer Causes that are Total or Include Oopherectomy

		Age Group				
Fiscal Year	Overall Rate	20–39	40–49	50–64	65–74	75+
1992/93	79.0	81.6	86.9	72.0	41.7	40.0
1993/94	74.3	75.5	81.8	71.1	38.7	30.8
1994/95	71.0	70.2	78.3	70.7	40.2	35.3
1995/96	68.7	68.0	75.6	69.9	39.5	33.5
1996/97	69.8	67.6	76.8	72.0	43.1	36.3
1997/98	69.3	66.5	75.4	73.4	42.6	37.7
1998/99	69.5	66.4	75.7	72.7	46.2	41.3
1999/2000	69.8	67.4	76.5	71.3	45.3	40.5

Data source: Canadian Institute for Health Information, 1992/93–1999/2000; Statistics Canada, 1992 to 2000

Exhibit 17-11. Relative Hysterectomy Rates per 100,000 Women Aged 20 and Over by County Area of Patient Residence in Ontario, 1995/96–1999/2000

		All Hysterectomy		Cancer		Non Cancer		Fibroid		Prolapse		DUB		Endometriosis		Vaginal Hyst		Total/Ooph		Rank	
County	Population	RR	SE	RR	SE	RR	SE	RR	SE	RR	SE	RR	SE	RR	SE	RR	P value	RR	P value	NonCancer	P value
Algoma	47,000	1.36	0.03	1.01	0.09	1.41	0.04	1.08	0.06	1.22	0.08	1.56	0.08	2.59	0.16	1.42	*	1.92	*	12	*
Brant	43,000	1.07	0.03	1.20	0.10	1.05	0.03	1.00	0.06	1.06	0.08	1.13	0.07	1.07	0.11	0.57	*	1.45	*	32	
Bruce	24,000	1.10	0.04	0.95	0.12	1.12	0.05	1.28	0.09	0.92	0.09	0.87	0.08	1.65	0.18	0.81		1.43	*	29	
Cochrane	33,000	1.68	0.05	1.29	0.13	1.72	0.05	1.92	0.09	0.81	0.08	1.77	0.10	2.71	0.19	1.83	*	2.35	*	3	*
Dufferin	16,000	0.93	0.05	1.05	0.17	0.92	0.05	0.69	0.08	0.92	0.13	1.17	0.11	0.84	0.15	0.83		1.14		40	
Durham	163,000	1.28	0.02	1.06	0.05	1.31	0.02	1.20	0.03	1.01	0.04	1.47	0.04	1.56	0.06	0.85	*	1.74	*	19	*
Elgin	29,000	1.74	0.05	1.34	0.13	1.79	0.05	0.69	0.06	1.13	0.10	3.59	0.15	0.69	0.11	3.43	*	0.77		2	*
Essex	132,000	1.23	0.02	0.93	0.05	1.27	0.02	1.08	0.03	1.45	0.05	1.65	0.05	0.85	0.05	1.38	*	1.41	*	22	*
Frontenac	53,000	0.88	0.03	1.29	0.10	0.83	0.03	0.73	0.04	0.75	0.06	0.95	0.06	0.88	0.09	0.76	*	0.82	*	46	*
Grey	33,000	1.11	0.04	1.27	0.12	1.09	0.04	1.03	0.07	1.03	0.09	0.99	0.08	1.40	0.14	0.75	*	1.61	*	30	
Haldimand-Norfolk	37,000	1.30	0.04	1.15	0.11	1.32	0.04	1.08	0.06	1.06	0.08	1.26	0.08	3.27	0.20	1.67	*	1.51	*	17	*
Haliburton	6,000	0.93	0.08	0.96	0.22	0.93	0.08	0.93	0.15	0.85	0.17	1.01	0.20	0.54	0.22	0.85		0.83		38	
Halton	127,000	0.92	0.02	0.94	0.05	0.92	0.02	0.90	0.03	1.01	0.05	0.92	0.04	0.65	0.05	0.86	*	0.70	*	39	*
Hamilton-Wentworth	180,000	0.92	0.01	0.91	0.04	0.92	0.02	0.93	0.03	1.07	0.04	0.91	0.03	0.71	0.04	0.65	*	0.87	*	41	*
Hastings	45,000	1.36	0.03	1.02	0.09	1.40	0.04	1.28	0.06	1.32	0.08	2.00	0.09	0.95	0.10	1.38	*	1.82	*	13	*
Huron	22,000	0.93	0.04	1.02	0.13	0.92	0.04	0.83	0.07	0.71	0.09	1.17	0.11	1.06	0.16	0.75	*	1.41	*	42	
Kenora	21,000	0.89	0.04	0.42	0.09	0.93	0.05	0.80	0.07	1.40	0.14	0.73	0.08	1.09	0.15	1.95	*	0.38	*	37	
Kent	41,000	1.22	0.03	0.98	0.19	1.25	0.04	0.86	0.06	1.10	0.08	1.56	0.09	1.69	0.14	1.25	*	1.97	*	23	*
Lambton	48,000	1.30	0.03	0.95	0.18	1.34	0.04	0.79	0.05	0.76	0.06	2.29	0.10	2.44	0.15	1.81	*	1.56	*	16	*
Lanark	23,000	1.44	0.05	1.13	0.14	1.48	0.05	0.86	0.07	1.53	0.13	2.42	0.14	1.16	0.15	1.61	*	1.83	*	10	*
Leeds & Grenville	37,000	1.19	0.04	1.22	0.11	1.19	0.04	0.77	0.05	0.88	0.08	1.39	0.09	1.68	0.15	1.03		1.46	*	27	*
Lennox and Addington	14,000	1.02	0.05	1.22	0.18	1.00	0.06	0.83	0.09	0.84	0.12	1.37	0.14	1.06	0.18	1.13		1.44	*	36	
Manitoulin	4,000	1.44	0.12	1.05	0.29	1.49	0.13	1.29	0.22	0.98	0.23	2.14	0.34	1.39	0.42	0.74		2.18	*	9	*
Metropolitan Toronto	966,000	0.70	0.01	0.95	0.02	0.67	0.01	0.99	0.01	0.76	0.01	0.27	0.01	0.56	0.02	0.56	*	0.40	*	49	*
Middlesex	149,000	0.90	0.02	0.98	0.05	0.89	0.02	0.84	0.03	0.84	0.04	0.90	0.03	0.95	0.05	0.99		0.77	*	44	*
Muskoka	19,000	1.05	0.05	1.06	0.14	1.04	0.05	0.78	0.08	1.16	0.12	1.22	0.11	1.44	0.19	1.55	*	1.09		33	
Niagara	157,000	1.26	0.02	1.12	0.05	1.28	0.02	1.10	0.03	1.12	0.04	1.49	0.04	1.33	0.06	1.32	*	1.46	*	21	*
Nipissing	32,000	1.49	0.04	0.84	0.10	1.57	0.05	0.61	0.05	1.18	0.10	3.40	0.14	0.95	0.12	1.70	*	2.32	*	5	*
Northumberland	30,000	1.20	0.04	1.06	0.11	1.22	0.04	1.07	0.07	1.05	0.09	1.41	0.10	1.27	0.14	0.91		1.73	*	25	*
Ottawa-Carleton Region	279,000	0.92	0.01	1.00	0.04	0.91	0.01	0.99	0.02	0.80	0.03	0.88	0.02	0.80	0.03	1.11	*	0.72	*	43	*
Oxford	36,000	1.05	0.03	1.01	0.10	1.06	0.04	0.59	0.05	1.11	0.09	1.71	0.10	0.84	0.11	1.61	*	1.01		31	
Parry Sound	15,000	1.22	0.06	1.09	0.15	1.24	0.06	0.81	0.09	1.04	0.12	1.95	0.16	1.05	0.19	1.55	*	1.58	*	24	*
Peel	307,000	0.79	0.01	0.91	0.04	0.77	0.01	0.98	0.02	0.93	0.03	0.56	0.02	0.58	0.03	0.67	*	0.60	*	48	*
Perth	26,000	0.86	0.04	1.08	0.12	0.83	0.04	0.72	0.06	0.78	0.09	1.11	0.09	0.66	0.11	1.11		0.80		45	*
Peterborough	48,000	1.02	0.03	1.05	0.09	1.01	0.03	1.07	0.06	0.82	0.06	1.17	0.07	0.53	0.07	0.86		0.81	*	35	
Prescott & Russell	27,000	1.35	0.04	1.06	0.13	1.38	0.05	1.21	0.08	1.13	0.11	1.98	0.11	1.01	0.13	1.58	*	1.76	*	14	*
Prince Edward	10,000	1.08	0.07	0.72	0.16	1.12	0.07	0.97	0.12	1.08	0.16	1.52	0.18	0.78	0.20	0.99		1.57	*	28	
Rainy River	8,000	1.40	0.08	0.46	0.14	1.52	0.09	1.24	0.15	1.12	0.19	1.27	0.18	2.33	0.37	0.92		1.84	*	8	*
Renfrew	36,000	1.48	0.04	0.87	0.09	1.56	0.04	1.25	0.07	1.98	0.12	1.57	0.09	2.67	0.19	3.09	*	1.49	*	7	*

Exhibit 17-11. Relative Hysterectomy Rates per 100,000 Women Aged 20 and Over by County Area of Patient Residence in Ontario, 1995/96–1999/2000 *Continued*

		All Hysterectomy		Cancer		Non Cancer		Fibroid		Prolapse		DUB		Endometriosis		Vaginal Hyst		Total/Ooph		Rank	
County	Population	RR	SE	RR	SE	RR	SE	RR	SE	RR	SE	RR	SE	RR	SE	RR	P value	RR	P value	NonCancer	P value
Simcoe	121,000	1.28	0.02	1.08	0.06	1.31	0.02	1.11	0.04	1.25	0.05	1.57	0.05	1.26	0.07	1.41	*	1.56	*	20	*
Stormont, Dundas & Glengarry	42,000	1.37	0.04	1.04	0.09	1.41	0.04	0.88	0.05	1.25	0.09	2.21	0.10	1.10	0.11	1.86	*	1.85	*	11	*
Sudbury (R.M.)	62,000	1.63	0.03	1.00	0.08	1.71	0.03	1.29	0.05	1.35	0.08	2.26	0.08	2.91	0.14	1.00		3.20	*	4	*
Sudbury District	9,000	1.53	0.08	1.25	0.23	1.57	0.09	1.18	0.13	1.41	0.20	2.03	0.20	2.42	0.34	1.38		2.65	*	6	*
Thunder Bay	58,000	1.28	0.03	0.97	0.08	1.31	0.03	1.22	0.05	1.97	0.09	1.12	0.06	1.26	0.10	2.48	*	0.65	*	18	*
Timiskaming	14,000	1.77	0.07	1.26	0.18	1.83	0.08	0.93	0.10	1.13	0.14	4.04	0.24	1.31	0.21	1.48	*	3.52	*	1	*
Victoria	25,000	1.34	0.05	1.23	0.13	1.35	0.05	1.01	0.08	0.90	0.09	1.92	0.12	1.75	0.18	0.84		2.10	*	15	*
Waterloo	149,000	1.05	0.02	1.14	0.06	1.04	0.02	1.07	0.03	1.18	0.05	0.83	0.03	1.35	0.06	1.03		1.24	*	34	
Wellington	63,000	1.19	0.03	1.07	0.08	1.20	0.03	1.01	0.05	1.43	0.08	1.16	0.06	1.56	0.10	1.08		1.55	*	26	*
York	213,000	0.81	0.01	0.89	0.04	0.81	0.01	0.95	0.02	1.00	0.04	0.64	0.02	0.59	0.03	0.82	*	0.58	*	47	*

Data source: Canadian Institute for Health Information, 1995/96–1999/2000; Statistics Canada, 1992 to 2000

County five-year rates of hysterectomy relative to directly standardized Ontario five year hysterectomy rates by Gynaecological Problem

Counties ranked by relative non-cancer rates over five years 1995/96–1999/2000

Vaginal Hyst *Proportion of hysterectomy cases that are vaginal hysterectomy*

Total Ooph *Total hysterectomy or oopherectomy in patients age less than 40 years*

P-value < .001 is denoted ""*

RR *relative rate*

SE *standard error*

DUB *dysfunctional uterine bleeding*

Exhibit 17-11. Relative Hysterectomy Rates per 100,000 Women Aged 20 and Over by County Area of Patient Residence in Ontario, 1995/96–1999/2000

		All Hysterectomy		Cancer		Non Cancer		Fibroid		Prolapse		DUB		Endometriosis		Vaginal Hyst		Total Ooph		Rank	
County	Population	RR	SE	RR	SE	RR	SE	RR	SE	RR	SE	RR	SE	RR	SE	RR	P value	RR	P value	NonCancer	P value
Algoma	47,000	1.36	0.03	1.01	0.09	1.41	0.04	1.08	0.06	1.22	0.08	1.56	0.08	2.59	0.16	1.42	*	1.92	*	12	*
Brant	43,000	1.07	0.03	1.20	0.10	1.05	0.03	1.00	0.06	1.06	0.08	1.13	0.07	1.07	0.11	0.57	*	1.45	*	32	
Bruce	24,000	1.10	0.04	0.95	0.12	1.12	0.05	1.28	0.09	0.92	0.09	0.87	0.08	1.65	0.18	0.81		1.43	*	29	
Cochrane	33,000	1.68	0.05	1.29	0.13	1.72	0.05	1.92	0.09	0.81	0.08	1.77	0.10	2.71	0.19	1.83	*	2.35	*	3	*
Dufferin	16,000	0.93	0.05	1.05	0.17	0.92	0.05	0.69	0.08	0.92	0.13	1.17	0.11	0.84	0.15	0.83		1.14		40	
Durham	163,000	1.28	0.02	1.06	0.05	1.31	0.02	1.20	0.03	1.01	0.04	1.47	0.04	1.56	0.06	0.85	*	1.74	*	19	*
Elgin	29,000	1.74	0.05	1.34	0.13	1.79	0.05	0.69	0.06	1.13	0.10	3.59	0.15	0.69	0.11	3.43	*	0.77		2	*
Essex	132,000	1.23	0.02	0.93	0.05	1.27	0.02	1.08	0.03	1.45	0.05	1.65	0.05	0.85	0.05	1.38	*	1.41	*	22	*
Frontenac	53,000	0.88	0.03	1.29	0.10	0.83	0.03	0.73	0.04	0.75	0.06	0.95	0.06	0.88	0.09	0.76	*	0.82	*	46	*
Grey	33,000	1.11	0.04	1.27	0.12	1.09	0.04	1.02	0.07	1.03	0.09	0.99	0.08	1.40	0.14	0.75	*	1.61	*	30	
Haldimand-Norfolk	37,000	1.30	0.04	1.15	0.11	1.32	0.04	1.08	0.06	1.06	0.08	1.26	0.08	3.27	0.20	1.67	*	1.51	*	17	*
Haliburton	6,000	0.93	0.08	0.96	0.22	0.93	0.08	0.93	0.15	0.85	0.17	1.01	0.20	0.54	0.22	0.85		0.83		38	
Halton	127,000	0.92	0.02	0.94	0.05	0.92	0.02	0.90	0.03	1.01	0.05	0.92	0.04	0.65	0.05	0.86	*	0.70	*	39	*
Hamilton-Wentworth	180,000	0.92	0.01	0.91	0.04	0.92	0.02	0.93	0.03	1.07	0.04	0.91	0.03	0.71	0.04	0.65	*	0.87	*	41	*
Hastings	45,000	1.36	0.03	1.02	0.09	1.40	0.04	1.28	0.06	1.32	0.08	2.00	0.09	0.95	0.10	1.38	*	1.82	*	13	*
Huron	22,000	0.93	0.04	1.02	0.13	0.92	0.04	0.83	0.07	0.71	0.09	1.17	0.11	1.06	0.16	0.75	*	1.41	*	42	
Kenora	21,000	0.89	0.04	0.42	0.09	0.93	0.05	0.80	0.07	1.40	0.14	0.73	0.08	1.09	0.15	1.95	*	0.38	*	37	
Kent	41,000	1.22	0.03	0.98	0.09	1.25	0.04	0.86	0.06	1.10	0.08	1.56	0.09	1.69	0.14	1.25	*	1.97	*	23	*
Lambton	48,000	1.30	0.03	0.95	0.08	1.34	0.04	0.79	0.05	0.76	0.06	2.29	0.10	2.44	0.15	1.81	*	1.56	*	16	*
Lanark	23,000	1.44	0.05	1.13	0.14	1.48	0.05	0.86	0.07	1.53	0.13	2.42	0.14	1.16	0.15	1.61	*	1.83	*	10	*
Leeds & Grenville	37,000	1.19	0.04	1.22	0.11	1.19	0.04	0.77	0.05	0.88	0.08	1.39	0.09	1.68	0.15	1.03		1.46	*	27	*
Lennox and Addington	14,000	1.02	0.05	1.22	0.18	1.00	0.06	0.83	0.09	0.84	0.12	1.37	0.14	1.06	0.18	1.13		1.44	*	36	
Manitoulin	4,000	1.44	0.12	1.05	0.29	1.49	0.13	1.29	0.22	0.98	0.23	2.14	0.34	1.39	0.42	0.74		2.18	*	9	*
Metropolitan Toronto	966,000	0.70	0.01	0.95	0.02	0.67	0.01	0.99	0.01	0.76	0.01	0.27	0.01	0.56	0.02	0.56	*	0.40	*	49	*
Middlesex	149,000	0.90	0.02	0.98	0.05	0.89	0.02	0.84	0.03	0.84	0.04	0.90	0.03	0.95	0.05	0.99		0.77	*	44	*
Muskoka	19,000	1.05	0.05	1.06	0.14	1.04	0.05	0.78	0.08	1.16	0.12	1.22	0.11	1.44	0.19	1.55	*	1.09		33	
Niagara	157,000	1.26	0.02	1.12	0.05	1.28	0.02	1.10	0.03	1.12	0.04	1.49	0.04	1.33	0.06	1.32	*	1.46	*	21	*
Nipissing	32,000	1.49	0.04	0.84	0.10	1.57	0.05	0.61	0.05	1.18	0.10	3.40	0.14	0.95	0.12	1.70	*	2.32	*	5	*
Northumberland	30,000	1.20	0.04	1.06	0.11	1.22	0.04	1.07	0.07	1.05	0.09	1.41	0.10	1.27	0.14	0.91		1.73	*	25	*
Ottawa-Carleton Region	279,000	0.92	0.01	1.00	0.04	0.91	0.01	0.99	0.02	0.80	0.03	0.88	0.02	0.80	0.03	1.11	*	0.72	*	43	*
Oxford	36,000	1.05	0.03	1.01	0.10	1.06	0.04	0.59	0.05	1.11	0.09	1.71	0.10	0.84	0.11	1.61	*	1.01		31	
Parry Sound	15,000	1.22	0.06	1.09	0.15	1.24	0.06	0.81	0.09	1.04	0.12	1.95	0.16	1.05	0.19	1.55	*	1.58	*	24	*
Peel	307,000	0.79	0.01	0.91	0.04	0.77	0.01	0.98	0.02	0.93	0.03	0.56	0.02	0.58	0.03	0.67	*	0.60	*	48	*
Perth	26,000	0.86	0.04	1.08	0.12	0.83	0.04	0.72	0.06	0.78	0.09	1.11	0.09	0.66	0.11	1.11		0.80		45	*
Peterborough	48,000	1.02	0.03	1.05	0.09	1.01	0.03	1.07	0.06	0.82	0.06	1.17	0.07	0.53	0.07	0.86		0.81	*	35	
Prescott & Russell	27,000	1.35	0.04	1.06	0.13	1.38	0.05	1.21	0.08	1.13	0.11	1.98	0.11	1.01	0.13	1.58	*	1.76	*	14	*
Prince Edward	10,000	1.08	0.07	0.72	0.16	1.12	0.07	0.97	0.12	1.08	0.16	1.52	0.18	0.78	0.20	0.99		1.57	*	28	
Rainy River	8,000	1.40	0.08	0.46	0.14	1.52	0.09	1.24	0.15	1.12	0.19	1.27	0.18	2.33	0.37	0.92		1.84	*	8	*
Renfrew	36,000	1.48	0.04	0.87	0.09	1.56	0.04	1.25	0.07	1.98	0.12	1.57	0.09	2.67	0.19	3.09	*	1.49	*	7	*

Exhibit 17-11. Relative Hysterectomy Rates per 100,000 Women Aged 20 and Over by County Area of Patient Residence in Ontario, 1995/96–1999/2000 *Continued*

		All Hysterectomy		Cancer		Non Cancer		Fibroid		Prolapse		DUB		Endometriosis		Vaginal Hyst		Total Ooph		Rank	
County	Population	RR	SE	RR	SE	RR	SE	RR	SE	RR	SE	RR	SE	RR	SE	RR	P value	RR	P value	NonCancer	P value
Simcoe	121,000	1.28	0.02	1.08	0.06	1.31	0.02	1.11	0.04	1.25	0.05	1.57	0.05	1.26	0.07	1.41	*	1.56	*	20	*
Stormont, Dundas & Glengarry	42,000	1.37	0.04	1.04	0.09	1.41	0.04	0.88	0.05	1.25	0.09	2.21	0.10	1.10	0.11	1.86	*	1.85	*	11	*
Sudbury (R.M.)	62,000	1.63	0.03	1.00	0.08	1.71	0.03	1.29	0.05	1.35	0.08	2.26	0.08	2.91	0.14	1.00		3.20	*	4	*
Sudbury District	9,000	1.53	0.08	1.25	0.23	1.57	0.09	1.18	0.13	1.41	0.20	2.03	0.20	2.42	0.34	1.38		2.65	*	6	*
Thunder Bay	58,000	1.28	0.03	0.97	0.08	1.31	0.03	1.22	0.05	1.97	0.09	1.12	0.06	1.26	0.10	2.48	*	0.65	*	18	*
Timiskaming	14,000	1.77	0.07	1.26	0.18	1.83	0.08	0.93	0.10	1.13	0.14	4.04	0.24	1.31	0.21	1.48	*	3.52	*	1	*
Victoria	25,000	1.34	0.05	1.23	0.13	1.35	0.05	1.01	0.08	0.90	0.09	1.92	0.12	1.75	0.18	0.84		2.10	*	15	*
Waterloo	149,000	1.05	0.02	1.14	0.06	1.04	0.02	1.07	0.03	1.18	0.05	0.83	0.03	1.35	0.06	1.03		1.24	*	34	
Wellington	63,000	1.19	0.03	1.07	0.08	1.20	0.03	1.01	0.05	1.43	0.08	1.16	0.06	1.56	0.10	1.08		1.55	*	26	*
York	213,000	0.81	0.01	0.89	0.04	0.81	0.01	0.95	0.02	1.00	0.04	0.64	0.02	0.59	0.03	0.82	*	0.58	*	47	*

Data source: Canadian Institute for Health Information, 1995/96–1999/2000; Statistics Canada, 1992 to 2000

County five-year rates of hysterectomy relative to directly standardized Ontario five-year hysterectomy rates by Gynaecological Problem

Counties ranked by relative non-cancer rates over five years 1995/96–1999/2000

Vaginal Hyst — *Proportion of hysterectomy cases that are vaginal hysterectomy*

Total Ooph — *Total hysterectomy or oophorectomy in patients age less than 40 years*

P value < .001 is denoted ""*

RR — *relative rate*

SE — *standard error*

DUB — *dysfunctional uterine bleeding*

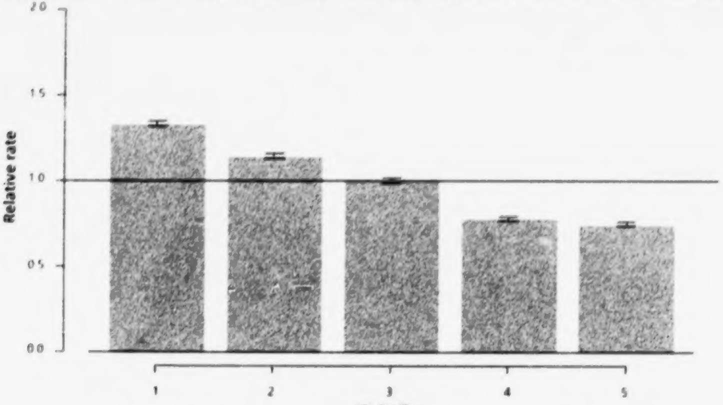
The extent and nature of the intercounty variations previously reported has not changed appreciably during the last five years. Counties previously identified as having high rates (Timiskaming, Nipissing, Cochrane, Sudbury) continue to have relatively high rates of hysterectomies per capita. Areas with low rates in the past (Metro Toronto, Peel) continue to lead with low rates in the most recent five years (Exhibit 17-11). The variation in geographic-area rates has continued to be greater than twofold between low- and high-rate areas.

Findings of persistent wide variations in hysterectomy rates have been found in other jurisdictions (Haas, Acker, Donahue, & Katz, 1993). For cancer-related surgery, there were only two counties with rates differing from the provincial average rate with a significance level of less than $p=0.001$. Both these counties (Kenora and Rainy River) had relatively low rates, which are most likely attributable to the out-of-province treatment of patients from that region. Hence, there is no appreciable observed unexplained variation in cancer-related hysterectomy surgery throughout the province. In contrast, the variations in rates for non-cancer related causes are substantial, greatest for DUB and endometriosis (weighted relative interquartile ranges 2.6 and 2.3 respectively), and less so for prolapse and fibroids (weighted relative interquartile ranges 1.5 and 1.1 respectively) (Exhibit 17-11).

County level variations in vaginal hysterectomy rates and total hysterectomy/oopherectomy rates for patients under the age of 40 (relative to the Ontario average) are presented in Exhibit 17-11. Both these rates are positively correlated with the non-cancer hysterectomy relative rates. For vaginal hysterectomy, this is largely due to the correlation between rates of hysterectomy for prolapse (which is almost always done as a vaginal hysterectomy). For total hysterectomy and oopherectomy, the correlation is mediated through the fact that the majority of such hysterectomies are total hysterectomies.

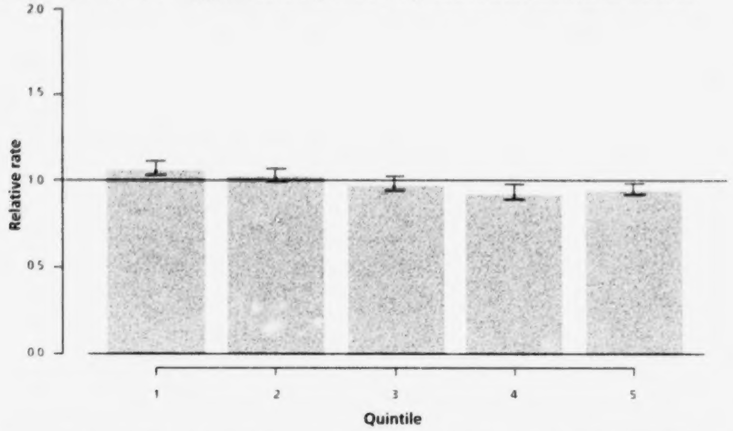
The variation in diagnosis-grouped hysterectomy rates by socioeconomic indicators exhibits a consistent and monotonic relationship between indicators of low education levels and high hysterectomy rates (Exhibit 17-12).

Exhibit 17-12. Hysterectomy Rates by Education Quintile: All Cases



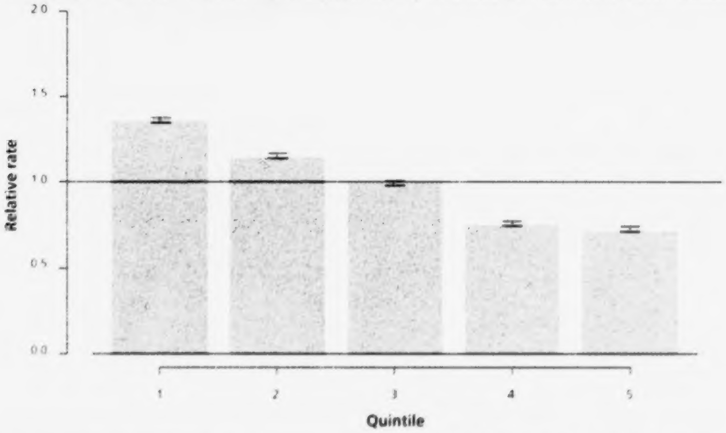
Data source: Canadian Institute for Health Information, 1992/93 to 1999/2000; Statistics Canada, 1992/93 to 1999/2000.

Exhibit 17-13. Hysterectomy Rates by Education Quintile: Cancer



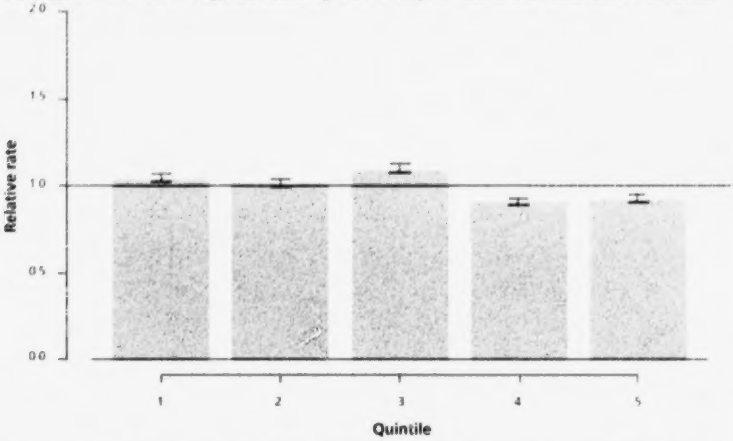
Data source: Canadian Institute for Health Information, 1992/93 to 1999/2000; Statistics Canada, 1992/93 to 1999/2000

Exhibit 17-14. Hysterectomy Rates by Education Quintile: Non-Cancer



Data source: Canadian Institute for Health Information, 1992/93 to 1999/2000; Statistics Canada, 1992/93 to 1999/2000

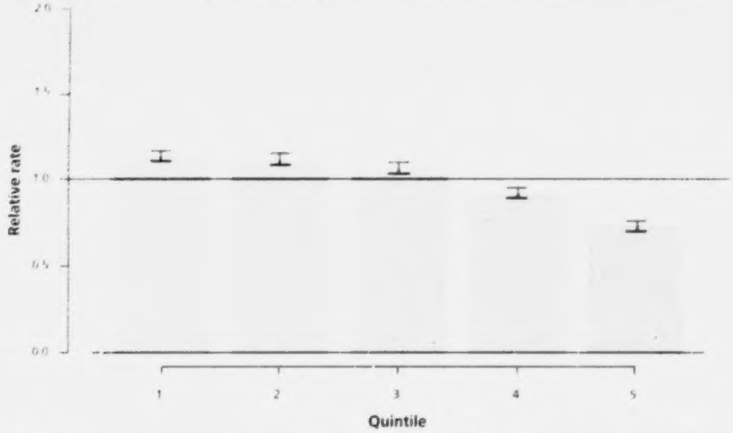
Exhibit 17-15. Hysterectomy Rates by Education Quintile: Fibroids



Data source: Canadian Institute for Health Information, 1992/93 to 1999/2000; Statistics Canada, 1992/93 to 1999/2000

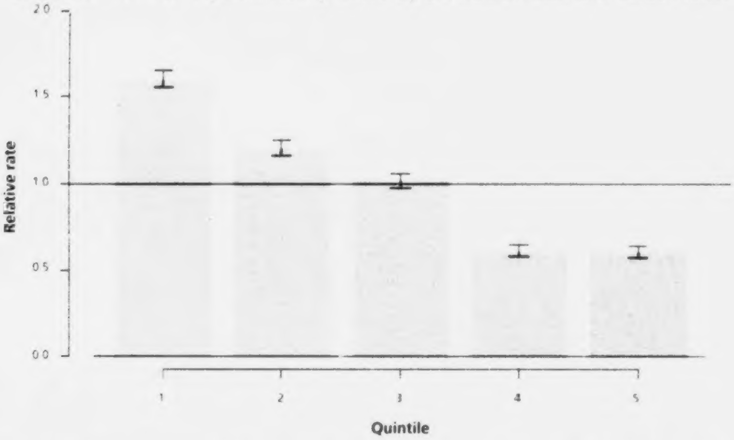
The cancer-related hysterectomy rates among the population living in areas with the lowest post-secondary educational attainment were only 13 percent higher than those among the population living in the areas of highest post-secondary educational attainment (Exhibit 17-13). The rates for hysterectomies not related to cancer were 88 percent higher in the lowest education quintile compared to the highest quintile (Exhibit 17-14). The fibroid-related hysterectomy rates were 13 percent higher than those among the population living in the areas of highest post-secondary educational attainment (Exhibit 17-15). The rates in the lowest quintile were more than 1.5 times as high for prolapse, 3.5 times as high for DUB, and 2.5 times as high for endometriosis as the rates in the highest education quintile (Exhibits 17-16, 17-17, 17-18). These results are consistent with the direction of the relationship between education and hysterectomy rates reported in other jurisdictions.

Exhibit 17-16. Hysterectomy Rates by Education Quintile: Prolapse



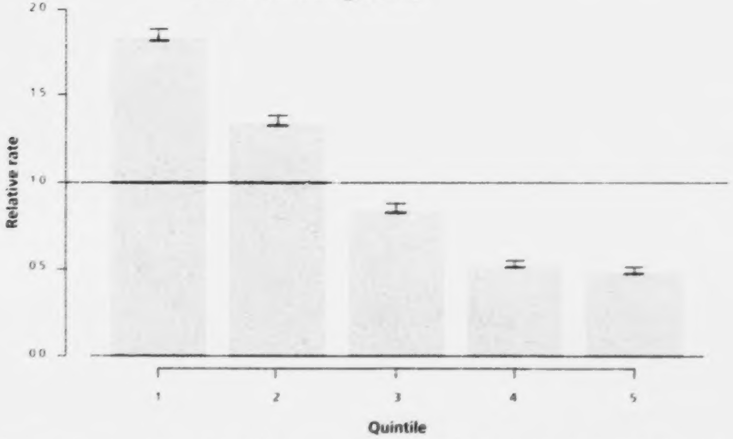
Data source: Canadian Institute for Health Information, 1992/93 to 1999/2000; Statistics Canada, 1992/93 to 1999/2000

Exhibit 17-17. Hysterectomy Rates by Education Quintile: Endometriosis



Data source: Canadian Institute for Health Information, 1992/93 to 1999/2000; Statistics Canada, 1992/93 to 1999/2000

Exhibit 17-18. Hysterectomy Rates by Education Quintile: Dysfunctional Uterine Bleeding (DUB)



Data source: Canadian Institute for Health Information, 1992/93 to 1999/2000; Statistics Canada, 1992/93 to 1999/2000.

CONCLUSIONS

Dramatic decreases in hysterectomy rates, and wide geographic variations in hysterectomies for diagnoses for which alternatives to medical therapy exist, were found in Ontario to 1994/95. The overall rate of decrease in rates has substantially abated, while intercounty variations persist and have remained stable over the last five years of data available. The minor decrease in overall hysterectomy rates subsequent to the plateauing observed in 1995–97 coincides with the release of the recommendations of the Ontario Provincial Working Group on Hysterectomy. However, the relatively small extent of the changes, the short duration of resumed decreases, the variability of projected post-censal population estimates and the concurrent restructuring of the Ontario hospital system preclude drawing any conclusions regarding the ongoing effectiveness of the quality of hysterectomy practices and utilization strategies.

While socioeconomic factors have previously been reported to be associated with variations in hysterectomy rate, it is disturbing to see the consistency, stability, and magnitude of these variations in Ontario. While it is tempting to speculate regarding the nature of causal links between education variables and hysterectomy rates, it is not clear whether the variation is mediated by differences in access or demand, or by other mechanisms. It is clear, nonetheless, that the recommendations made by the Provincial Working Group regarding public education and quality management ought to be revisited in light of these clear, systematic, and substantial variations.

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PART FOUR:
HEALTH BEHAVIOURS

CHAPTER 18 – SELF-REPORTED HEALTH PRACTICES

SUSAN BONDY AND SUSAN SCHULTZ

OVERVIEW

It is well known that health behaviour has a profound impact on health status. Specifically, preventive practices such as screening tests for breast and cervical cancer, blood pressure monitoring, and influenza immunization for the elderly are recommended so that the onset of more serious diseases such as cancer, heart disease, and pneumonia can be either prevented or delayed. Further, relationships between uptake of preventive practices and age, geographic region, ethnicity, income, and education are well established. This report uses the 1996 National Population Health Survey to examine the above relationships.

Overall, the proportion of women in Ontario who meet the guidelines for preventive screening for breast and cervical cancer meets or approaches the most recent targets set by the Ministry of Health and Long-Term Care. Women at the lower end of the socioeconomic scale continue to have lower screening rates than women at the upper end. Women of certain ethnic groups, particularly those of Asian descent, have much lower rates for nearly all the preventive practices examined in this study. This observation remains the case even after controlling for whether a woman is Canadian-born. The public health system must be empowered to sustain a climate for health to renew and expand preventive activities and systems of health-care delivery. Further research, support, and funding are necessary to examine the reasons why some population groups are less likely to engage in preventive health practices.

INTRODUCTION AND BACKGROUND

This chapter examines certain aspects of women's health behaviour that have an important impact on health status. Most of these are preventive practices such as screening tests for breast and cervical cancer, blood pressure monitoring, and influenza immunization for the elderly, which are recommended so that the onset of more serious diseases such as cancer, heart disease, and pneumonia can be either prevented or delayed (Canadian Task Force on the Periodic Health Examination, 1994). This chapter also looks at the body mass index (BMI) of Ontario women. BMI is a measure of body weight in relation to height and is commonly used to determine whether an individual is in a healthy weight range. Inappropriate weight, either too much or too little, can contribute to the development of a number of chronic conditions (Statistics Canada, 2001). This analysis examines the relationships between behaviour and age, geographic region, ethnicity, income, and education. Previous studies in Canada and Ontario have shown a relationship between socioeconomic status (SES) and both mammography (Katz & Hofer, 1994; Mercer & Goel, 1997; Gentleman & Lee, 1997) and cervical cancer screening (Goel, 1994; Lee, Parsons, & Gentleman, 1998). The final section of the chapter outlines the policy implications of these results and suggests areas needing further research.

METHODS

FRAMEWORK

The guidelines and recommendations that serve as a framework for this analysis derive from two sources. The first is the Canadian Task Force on the Periodic Health Exam (Canadian Task Force on the Periodic Health Examination, 1994), now known as the Canadian Task Force on Preventive Health Care (CTFPHC). On the basis of available evidence, the task force has made recommendations about the frequency and target population for a wide range of clinical preventive measures. The second source is the Mandatory Health Programs and Services Guidelines (Ontario Ministry of Health and Long-Term Care, 1997) published by the Ministry of Health and Long-Term Care (MOHLTC). In this document MOHLTC has set out targets for coverage for a number of preventive health services provided through government programs. These guidelines and targets are summarized in Appendix A.

DATA SOSURCE

Data for this report were extracted from the Ontario sub-sample of the 1996/97 National Population Health Survey (NPHS), called the Ontario Health Survey II (OHS II). The NPHS is a longitudinal survey of health in the ten provinces that began in 1994/95; data are collected every two years. In 1996/97, the second cycle of the NPHS, the Ontario government "bought in" approximately 30,000 additional cross-sectional respondents, who were selected using random digit dialing (RDD), to enable estimates within local areas in the province. The OHS II combines the cross-sectional and the longitudinal respondents. All respondents were surveyed using computer-assisted telephone interviewing (CATI). The complete sample of the OHS II survey includes 36,892 respondents over the age of 12.

DEPENDENT VARIABLES

This chapter examines a number of health behaviours: compliance with guidelines for preventive cancer screening such as mammography, clinical breast exam, and the Pap smear test; other preventive health measures such as blood pressure monitoring and influenza immunization; the prevalence of high body mass index; and actions taken or planned to improve health. When inquiring about preventive measures, the OHS II first asked if the respondent had ever had the test and then how long it had been since the respondent's last test. Respondents who had had a test, regardless of how much time had passed since the last one, were then asked if they had ever had any problems obtaining the test. Respondents who had never had the test or who had not had one within the target period were then asked to give reasons. Target periods were as follows: mammography and clinical breast exam — two years; Pap smear — three years; blood pressure monitoring — two years; flu shot — one year. The analysis looked at probabilities both of having each test within the target period, and of never having had the test at all.

INDEPENDENT VARIABLES

The independent variables were age, geographic region, highest level of education, household income, immigrant status, and ethnic group. Age was grouped into five categories. The geographic regions used were the seven Ontario MOHLTC health planning regions. Education was grouped into three categories, using the credentialing approach (Krieger, Williams, & Moss, 1997): less than high school graduation, high school graduation with or without some college or university, and college or university graduation. Household income is a four-category variable adjusted for household size. With respect to immigration, respondents were categorized according to whether they were born in Canada or not. Although the length of residency in Canada since immigration has also been shown to be related to health-care utilization (Wen, Goel, & Williams, 1996), in this analysis it was in most cases not possible to compare recent (within the past ten years) versus non-recent immigrants because of the small sample sizes.

The final independent variable included was ethnic group. It should be pointed out here that there is no "gold standard" either for assigning an individual to an ethnic group or for determining someone's ethnicity as part of a population-based survey. Earlier Canadian population-based surveys have tended to take an open-ended approach, developing categories based on the range of responses. Information on ethnicity is available from five questions in the OHS II: respondents were asked to give their country of birth, their ethnic origins (multiple responses accepted), the languages in which they could conduct a conversation, the first language learned and still understood, and their race or colour. All questions were asked in an open-ended manner, but the responses were slotted into predetermined categories. Using the classification algorithm outlined in Appendixes B and C, each individual was assigned to an ethnic group primarily on the basis of the "ethnic origin" question, but in some cases also on the "country of birth" and the "race or colour" questions. The initial classification had ten categories, but small cell sizes forced a final re-aggregation into six categories: Canadian/US, Northern/Western European, Southern/Eastern European, Asian, Other, Multi-ethnic. Of the 19,731 women in the total sample, 220 (1.1%) did not respond to the questions and a further 484 (2.5%) could not be classified.

DATA ANALYSIS METHODS

In examining bivariate associations between the dependent and independent variables, the analytic weights provided by Statistics Canada were used to weight the sample up to the Ontario population. Multivariate logistic regression was then used to further examine the relationship between the dependent variable and geographic region or ethnic group, while controlling for potential confounders such as age, education, and income. Logistic regression was used to compare the odds of either meeting current guidelines or of never having had the procedure (the screening test, for example). In the case of the regional comparisons, a series of pairwise contrasts was used to compare each region to the others individually. For the ethnic group comparison, the reference group was "Canadian/US." To adjust the variance estimates for the complex sampling design, for the logistic regression analysis the analytic weights were normed (divided by the mean weight so that all weights sum to one) and down-weighted by the design effect of 1.15. All analyses were performed using SAS.

INTERPRETIVE CAUTIONS

When examining the results of this analysis, it is important to keep in mind that although efforts were made to ensure that the results of the Ontario Health Survey are as representative as possible, a number of populations were excluded from the survey. These include residents of Indian reserves, remote northern communities, armed forces personnel, the homeless, and residents of institutions. As well, since the survey was carried out by telephone, households without a telephone were also excluded.

RESULTS

Exhibit 18-1. Sociodemographic Characteristics of Women Aged 18 and Over in Ontario, 1996/97

	N	% (unwtd)	% (wtd)
Age group			
18–29	3,629	19.5	21.2
30–39	4,304	23.1	23.2
40–49	3,101	16.7	19.8
50–59	2,527	13.6	13.7
60–69	2,246	12.1	10.6
70–79	1,925	10.3	8.1
80+	889	4.8	3.4
Region			
East	2,787	15.0	14.0
Central East	2,973	16.0	15.4
Toronto	1,965	10.6	22.8
Central West	2,872	15.4	16.3
Central South	2,274	12.2	10.3
South West	3,021	16.2	13.4
North	2,729	14.7	7.9
Highest level of education			
< High school	4,741	25.7	23.5
High school graduation+	7,323	39.8	41.0
College/university grad	6,352	34.5	35.6
Household income			
Low	2,642	14.2	11.1
Low-middle	4,058	21.8	20.6
Upper-middle	5,024	27.0	27.6
High	2,091	11.2	13.5
Not stated	4,806	25.8	27.2
Immigrant status			
Canadian-born	14,622	79.0	71.5
"Non-recent immigrant (>10 yrs)"	3,148	17.0	21.2
"Recent immigrant (<10 yrs)"	751	4.1	7.4
Ethnic group			
Canadian/US	5,912	32.1	29.4
Northern/Western European	8,990	48.8	42.8
Southern/Eastern European	1,337	7.3	9.8
Asian	710	3.9	7.8
Other	779	4.2	6.4
Multi-ethnic	687	3.7	3.8
Number of ethnic origins			
One only	12,446	67.6	70.5
Two	4,418	24.0	21.5
Three or more	1,553	8.4	8.0

Data source: 1996/97 Ontario Health Survey

SOCIODEMOGRAPHIC PROFILE

The OHS II included 18,621 women over the age of 18 (Exhibit 18-1). Of this group 24 percent had attained less than a high school diploma, while 36 percent reported either a college diploma or university degree. With respect to income, 11 percent of the households had incomes falling into the "Low" category, 14 percent had "High" incomes, and the remainder fell somewhere in between. Income questions often have high rates of non-response, and this survey was no different, with incomes for some 27 percent of women missing. Because of this high non-response rate, this group is included as a separate category.

With respect to ethnicity and immigrant status, 72 percent of women were born in Canada, 21 percent had moved here more than ten years ago, and seven percent were classified as recent immigrants. In response to questions about their ethnic origins, 71 percent of the Ontario women sampled reported a single ethnic origin, 22 percent reported dual origins, and eight percent reported three or more. Using the algorithms described in Appendixes B and C, the largest ethnic group was Northern/Western European, with 43 percent of women. They were followed by Canadian/US with 29 percent, Southern/Eastern European with ten percent, and Asian (which includes women of East Asian, South Asian, and Middle Eastern heritage) at eight percent. "Other," which includes smaller groups such as women of Latin and South American, Caribbean, Jewish, and Black origin, comprised six percent of the population, and four percent were classified as multi-ethnic.

Exhibit 18-2. Mammogram Frequency Overall and by Region, Education, Income, Immigrant Status, and Ethnic Group, Women Aged 50–69 (%), 1996/97

	Less than two Years	Two Years or More	Have Never had a Mammogram
Ontario	67.13	14.42	18.45
Region			
East	66.9	13.4	19.7
Central East	68.7	14.8	16.6
Toronto	68.6	14.3	17.2
Central West	66.3	13.9	19.8
Central South	64.9	15.2	19.9
South West	67.0	15.2	17.8
North	65.9	14.6	19.5
Education			
< High school	62.2	15.2	22.6
High school graduation +	69.0	14.8	16.2
College/University grad	70.6	13.7	15.7
Income			
Low	52.4	21.9	25.7
Low-middle	64.4	16.4	19.2
Upper-middle	70.2	12.9	16.9
High	72.5	12.5	15.0
Unknown	68.6	12.8	18.7
Canadian-born			
Yes	67.7	13.9	18.4
No	66.2	15.5	18.3

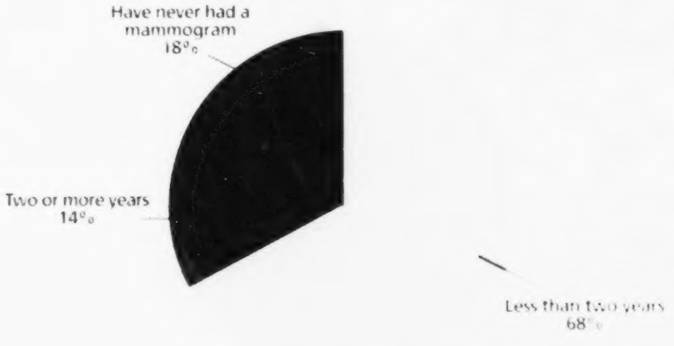
	Less than two Years	Two or More Years or Never
Ethnic group		
Canadian/US	67.9	32.08
Northern/Western European	67.6	32.37
Southern/Eastern European	64.2	35.78
Asian	63.7	36.32
Other	69.8	30.18
Multi-ethnic	66.1	33.95

Data source: 1996/97 Ontario Health Survey

BREAST CANCER SCREENING: MAMMOGRAPHY

Exhibit 18-2 shows the frequency of mammography in Ontario among women 50 to 69 years of age by region, education, income, whether they were born in Canada, and their ethnic group. In 1996/97 approximately 68 percent of women aged 50–69 reported having had a mammogram in the previous two years (Exhibit 18-3), a figure that is close to the Ministry target of 70 percent. There appeared to be some variation by education (Exhibit 18-4), but this effect disappeared after controlling for income. On the other hand, low- and low-middle income women were significantly less likely to meet screening guidelines, even after controlling for education. No significant regional variations were evident after controlling for income and education. By ethnic group, there was no significant difference in the odds of having had a mammogram in the previous two years, but Asian women were significantly more likely to have never had a mammogram in comparison with women in the Canadian/US group (Exhibit 18-5).

Exhibit 18-3. Time Since Most Recent Mammogram, Women Aged 50–69 in Ontario, 1996/97



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North	65.9	14.6	19.5
Education			
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High school graduation +	69.0	14.8	16.2
College/University grad	70.6	13.7	15.7
Income			
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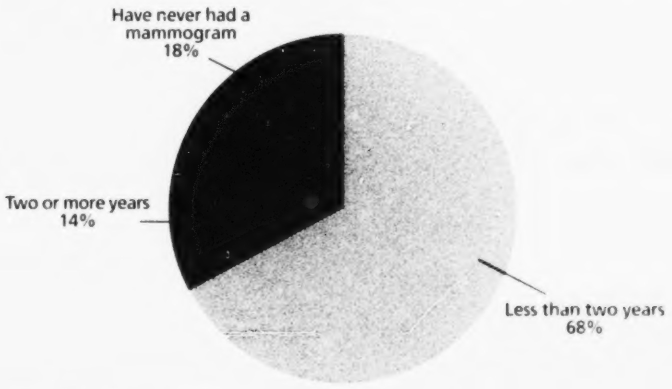
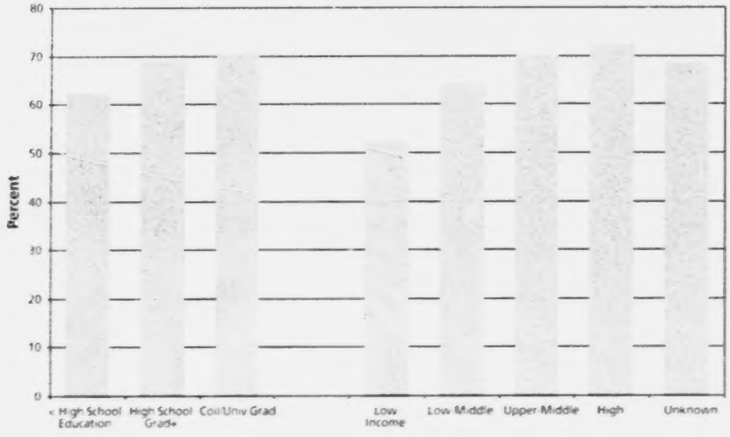


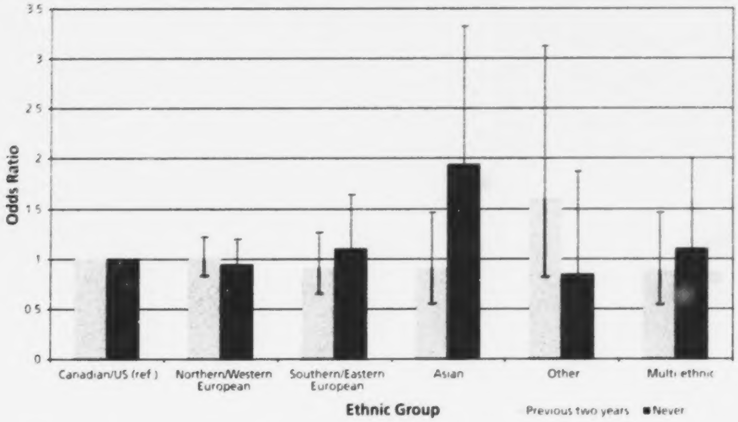
Data source: 1996/97 Ontario Health Survey

Exhibit 18-4. **Proportion of Women Aged 50–69 Reporting a Mammogram in Previous Two Years, by Education and Income, 1996/97**



Data source: 1996/97 Ontario Health Survey

Exhibit 18-5. **Odds Ratios for Having had a Mammogram in the Previous Two Years and Never Having had a Mammogram, Women Aged 50–69 in Ontario by Ethnic Group, 1996/97**



Data source: 1996/97 Ontario Health Survey

Exhibit 18-6. Clinical Breast Exam Frequency Overall and by Region, Education, Income, Immigrant Status, and Ethnic Group, Women Aged 50–69 in Ontario, 1996/97(%)

	Less than Two Years	Two Years or More	Have Never had a Clinical Breast Exam
Ontario	74.23	10.54	15.23
Region			
East	76.5	13.3	10.2
Central East	78.4	10.3	11.4
Toronto	73.6	5.8	20.6
Central West	77.0	8.5	14.5
Central South	70.4	14.9	14.7
South West	72.1	12.6	15.3
North	68.2	13.5	18.3
Education			
< High school	69.6	11.4	19.0
High school graduation+	75.2	10.4	14.4
College/University grad	78.4	10.2	11.5
Income			
Low	58.0	17.0	25.0
Low-middle	72.3	11.6	16.1
Upper-middle	76.3	10.1	13.7
High	82.8	9.8	7.4
Unknown	75.3	8.2	16.6
Canadian-born			
Yes	74.4	11.9	13.7
No	75.0	7.9	17.2

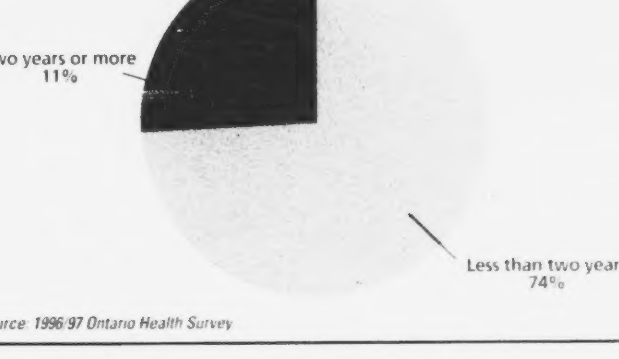
	Less than two Years	Two or More Years or Never
Ethnic Group		
Canadian/US	74.1	25.91
Northern/Western European	75.2	24.84
Southern/Eastern European	69.7	30.28
Asian	73.7	***
Other	74.5	25.55
Multi-ethnic	73.3	26.68

Data source 1996/97 Ontario Health Survey

BREAST CANCER SCREENING: CLINICAL BREAST EXAM

In the case of clinical breast exam (CBE), coverage rates already exceed the MOHLTC target of 70 percent of women aged 50 to 69 (Exhibits 18-6 and 18-7). Some regional differences are evident, but even in the North the coverage approaches the target. Regional differences appear to be explained by differences in education and income. Differences by education group are explained by income but, as in the case of mammography, differences by income group persist even after controlling for education (Exhibit 18-8). With respect to ethnic group, there is little variation in the odds of having had a CBE in the previous two years (Exhibit 18-9). The exception to this is the "Other" group; however, the relative diversity of this group and the wide confidence intervals around this estimate make this result difficult to interpret. As shown in Exhibit 18-9, Asian women again have the highest odds for never having had a clinical breast exam, in comparison to the Canada/US group.

Exhibit 18-7. Time Since Most Recent Clinical Breast Exam, Women Aged 50–69 in Ontario, 1996/97



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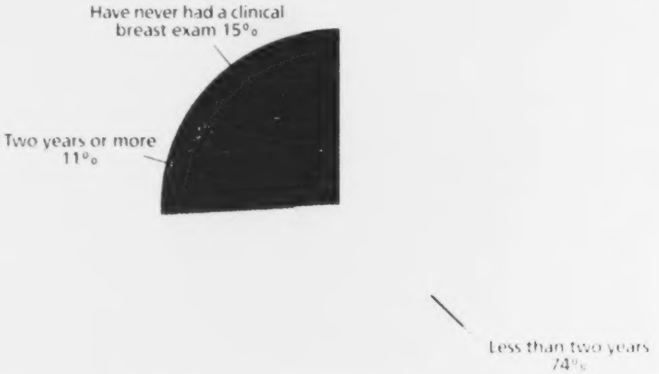
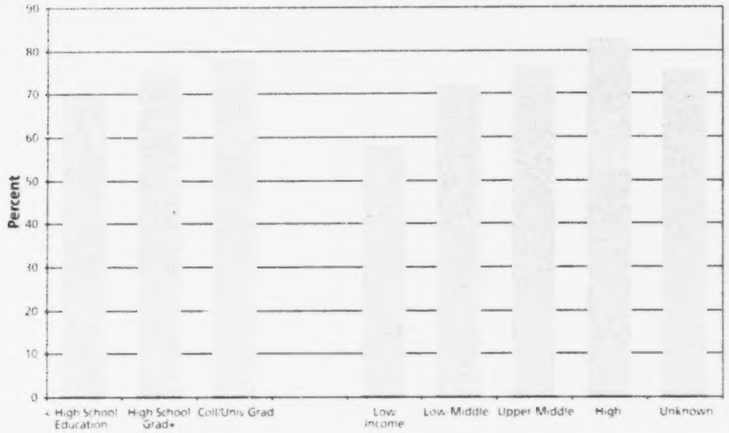


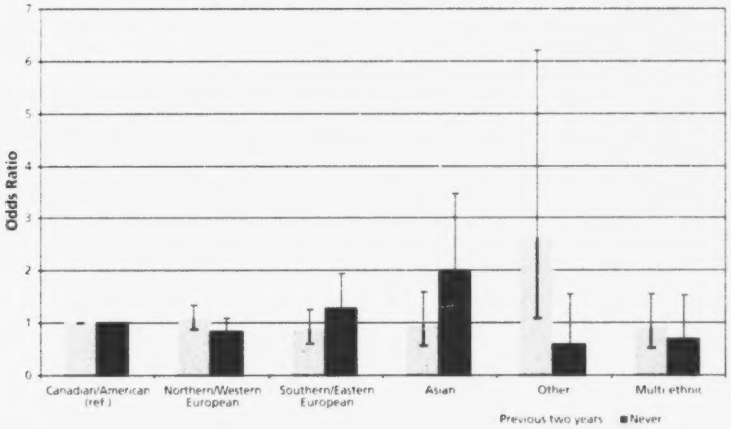
Data source: 1996/97 Ontario Health Survey

Exhibit 18-8. Proportion of Ontario Women Aged 50–69 Reporting a Clinical Breast Exam in Previous Two Years, by Education and Income, 1996/97



Data source: 1996/97 Ontario Health Survey

Exhibit 18-9. Odds Ratio for Having had a Clinical Breast Exam in the Previous Two Years and for Never Having had a Clinical Breast Exam, Women Aged 50–69 in Ontario, 1996/97



Data source: 1996/97 Ontario Health Survey.

Exhibit 18-10. Time of Most Recent Pap Smear, All Ontario Women Aged 18 and Over and Women 18–59 Who have had Sexual Intercourse, by Region, Education, Income, Immigrant Status, and Ethnic Group, 1996/97 (%)

	All Women 18+			Women 18–59, Who Have Had Sexual Intercourse		
	Within previous Three Years	More than Three Years ago	Have never had a Pap smear	Within previous Three Years	More than Three Years ago	Have never had a Pap smear
Ontario	76.04	12.20	11.76	85.73	7.68	6.59
Age Group						
18–29	75.3	1.5	23.2	89.3	1.4	9.3
30–39	86.0	6.9	7.1	88.1	6.8	5.1
40–49	83.9	10.0	6.1	85.7	10.5	3.8
50–59	79.7	14.3	6.0	82.7	13.1	4.2
60–69	67.4	24.1	8.6			
70–79	46.4	37.5	16.1			
80+	26.7	43.3	30.0			
Region						
East	78.8	12.1	9.1	88.5	7.0	4.5
Central East	80.0	11.4	8.6	88.4	7.9	3.6
Toronto	72.0	9.0	19.0	81.4	5.2	13.4
Central West	78.7	10.5	10.8	86.4	7.7	5.8
Central South	72.1	16.5	11.3	84.6	9.3	6.2
South West	74.8	15.3	9.9	86.0	8.8	5.3
North	76.3	16.0	7.7	85.2	10.7	4.1
Education						
< High school	64.2	19.1	16.7	80.1	9.8	10.1
High school grad+	76.3	11.3	12.4	85.0	7.9	7.1
College/University grad	82.9	9.0	8.1	88.6	6.6	4.8
Income						
Low	65.0	17.6	17.4	78.4	10.3	11.2
Low-middle	72.9	15.3	11.8	84.8	8.1	7.1
Upper-middle	80.7	10.2	9.1	87.6	7.3	5.1
High	84.4	8.3	7.3	87.8	8.2	4.1
Unknown	73.6	11.8	14.7	85.5	6.1	8.4
Immigrant Status						
Canadian-born	78.9	12.6	8.5	88.1	7.7	4.2
Non-recent immigrant	71.4	14.1	14.5	82.7	9.2	8.1
Recent immigrant	58.8	***	38.3	66.6	3.4	30.0
Ethnic group						
Canadian/American	80.2	11.2	8.6	88.1	7.4	4.5
Northern/Western European	77.1	15.5	7.4	87.9	8.6	3.6
Southern/Eastern European	71.7	9.0	19.3	80.5	7.2	12.4
Asian	59.2	4.1	36.7	69.7	4.6	25.7
Other	74.3	9.0	16.7	82.1	5.6	12.3
Multi-ethnic	77.7	11.7	10.6	84.8	9.2	6.0

Data source: 1996/97 Ontario Health Survey

** Indicates samples of less than 15*

Exhibit 18-10. Time of Most Recent Pap Smear, All Ontario Women Aged 18 and Over and Women 18–59 Who have had Sexual Intercourse, by Region, Education, Income, Immigrant Status, and Ethnic Group, 1996/97 (%)

	All Women 18+			Women 18–59, Who Have Had Sexual Intercourse		
	Within previous Three Years	More than Three Years ago	Have never had a Pap smear	Within previous Three Years	More than Three Years ago	Have never had a Pap smear
Ontario	76.04	12.20	11.76	85.73	7.68	6.59
Age Group						
18–29	75.3	1.5	23.2	89.3	1.4	9.3
30–39	86.0	6.9	7.1	88.1	6.8	5.1
40–49	83.9	10.0	6.1	85.7	10.5	3.8
50–59	79.7	14.3	6.0	82.7	13.1	4.2
60–69	67.4	24.1	8.6			
70–79	46.4	37.5	16.1			
80+	26.7	43.3	30.0			
Region						
East	78.8	12.1	9.1	88.5	7.0	4.5
Central East	80.0	11.4	8.6	88.4	7.9	3.6
Toronto	72.0	9.0	19.0	81.4	5.2	13.4
Central West	78.7	10.5	10.8	86.4	7.7	5.8
Central South	72.1	16.5	11.3	84.6	9.3	6.2
South West	74.8	15.3	9.9	86.0	8.8	5.3
North	76.3	16.0	7.7	85.2	10.7	4.1
Education						
< High school	64.2	19.1	16.7	80.1	9.8	10.1
High school grad+	76.3	11.3	12.4	85.0	7.9	7.1
College/University grad	82.9	9.0	8.1	88.6	6.6	4.8
Income						
Low	65.0	17.6	17.4	78.4	10.3	11.2
Low-middle	72.9	15.3	11.8	84.8	8.1	7.1
Upper-middle	80.7	10.2	9.1	87.6	7.3	5.1
High	84.4	8.3	7.3	87.8	8.2	4.1
Unknown	73.6	11.8	14.7	85.5	6.1	8.4
Immigrant Status						
Canadian-born	78.9	12.6	8.5	88.1	7.7	4.2
Non-recent immigrant	71.4	14.1	14.5	82.7	9.2	8.1
Recent immigrant	58.8	*	38.3	66.6	3.4	30.0
Ethnic group						
Canadian/American	80.2	11.2	8.6	88.1	7.4	4.5
Northern/Western European	77.1	15.5	7.4	87.9	8.6	3.6
Southern/Eastern European	71.7	9.0	19.3	80.5	7.2	12.4
Asian	59.2	4.1	36.7	69.7	4.6	25.7
Other	74.3	9.0	16.7	82.1	5.6	12.3
Multi-ethnic	77.7	11.7	10.6	84.8	9.2	6.0

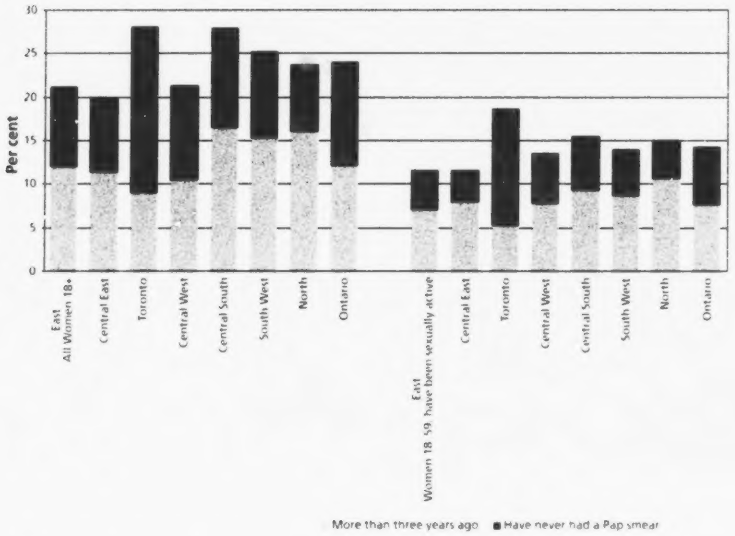
Data source: 1996/97 Ontario Health Survey

** Indicates samples of less than 15*

CERVICAL CANCER SCREENING: PAPANICOLAOU SMEAR TEST

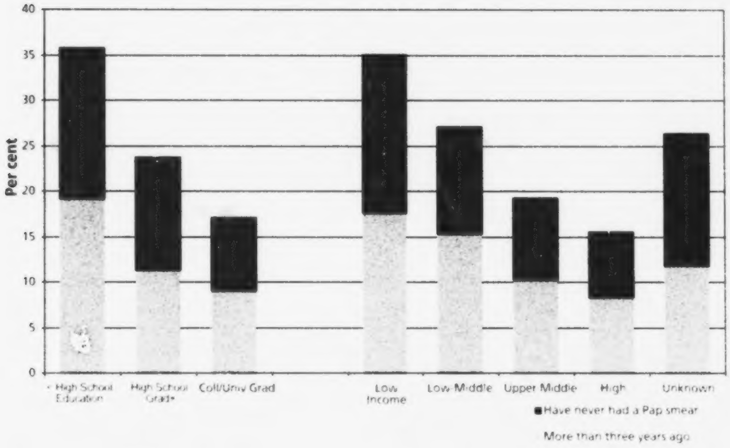
In 1996/97 approximately 85 percent of Ontario women 18–59 years of age who had ever had sexual intercourse reported being screened in the previous three years, meeting the MOHLTC target for this group (Exhibit 18-10). Among all women 18 and over, however, the proportion who reported never having had a Pap smear was still nearly 12 percent. Large regional differences were evident in cervical screening rates; the proportion of women 18 and over who had never had a Pap smear was markedly higher in Toronto compared with other regions (Exhibit 18-11). This was also true for women aged 18–59 who had been sexually active. These regional differences persisted even after controlling for education and income. Non-completion of a high school education and a low income were also associated with an increased probability of never having a Pap smear (Exhibit 18-12), even after controlling for age. Odds of both having had a Pap test in the previous three years and of never having had a Pap test were also strongly associated with ethnic group. Once again, coverage rates were lowest for Asian women, but there was also an association with women of Southern or Eastern European origin. Women from these two groups were less likely to have had a Pap smear in the previous three years and much more likely never to have had a Pap smear (Exhibit 18-13). This association persisted even after controlling for age, education, income, and whether the respondent was born in Canada.

Exhibit 18-11. Proportion of Women Who have Never had a Pap Smear or Not in the Previous Three Years, by Region, 1996/97



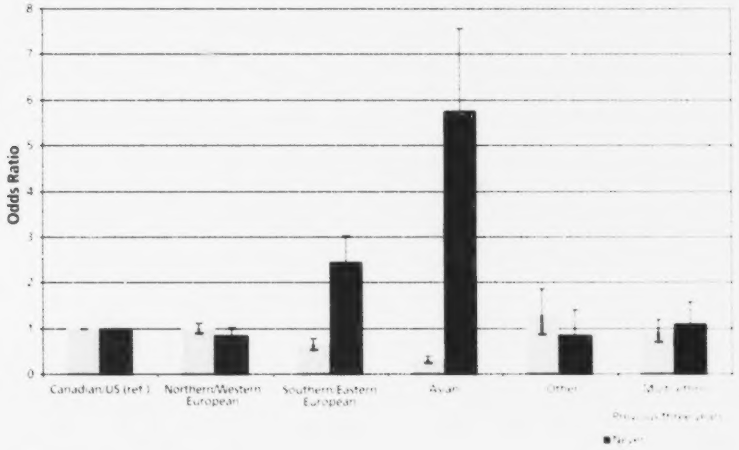
Data source: 1996/97 Ontario Health Survey

Exhibit 18-12. Proportion of Women Aged 18 and Over Who have Never had a Pap Smear or Not in the Previous Three Years, by Education and Income, 1996/97



Data source: 1996/97 Ontario Health Survey

Exhibit 18-13. Odds Ratio for having had a Pap Smear in the Previous Three Years or for Never having had a Pap Smear, Women 18 and Over, by Ethnic Group, 1996/97



Data source: 1996/97 Ontario Health Survey

Exhibit 18-14. Blood Pressure Testing: Frequency by Age, Region, Education, Income, Immigrant Status, and Ethnic Group, Women Aged 18 and Over in Ontario, 1996/97(%)

	Less than Two Years	Two Years or More	Have Never Had BP Checked
Ontario	92.9	5.0	2.1
Age			
18–24	87.3	5.0	7.7
25–44	92.3	5.7	2.1
45–64	94.5	4.8	0.7
65+	96.0	3.4	0.6
Region			
East	93.6	4.9	1.5
Central East	93.7	5.1	1.1
Toronto	93.1	3.7	3.2
Central West	92.4	4.7	2.8
Central South	90.9	7.1	2.0
South West	93.2	5.4	1.4
North	92.6	5.7	1.7
Education			
< High school	92.2	5.1	2.7
High school grad+	92.3	5.1	2.6
College/University grad	94.0	4.8	1.2
Income			
Low	91.1	5.6	3.4
Low-middle	92.6	5.4	2.0
Upper-middle	93.3	4.8	2.0
High	94.1	5.2	0.7
Unknown	92.9	4.6	2.5
Immigrant Status			
Canadian-born	93.4	5.3	1.3
Born outside Canada	91.6	4.4	4.0
Ethnic group			
Canadian/US	93.5	5.0	1.4
Northern/Western European	93.1	6.0	1.0
Southern/Eastern European	93.6	3.8	2.5
Asian	87.3	2.8	9.9
Other	92.9	3.8	3.3
Multi-ethnic	95.0	3.1	1.9

Data source: 1996/97 Ontario Health Survey

GENERAL PREVENTIVE HEALTH: BLOOD PRESSURE MONITORING

Regular monitoring of blood pressure (BP) levels is recommended from the age of 21 onward. Results from this analysis indicate that prevalence rates for BP monitoring reach very high levels by the age of 25 and appear to continue throughout the lifespan (Exhibit 18-14). The proportion of women who reported having their blood pressure checked recently was similar to the proportion who reported having a regular physician and who reported one to two visits to the doctor in the previous twelve months. There was little variation by region or income, while the apparently high rate for those with less than a high school diploma was largely explained by age. However, Exhibit 18-15 shows that once again there were significant differences by ethnic group, the odds for women of Asian origin never having had their blood pressure checked being over six times higher than they for Canadian/US women.

Exhibit 18-14. Blood Pressure Testing: Frequency by Age, Region, Education, Income, Immigrant Status, and Ethnic Group, Women Aged 18 and Over in Ontario, 1996/97(%)

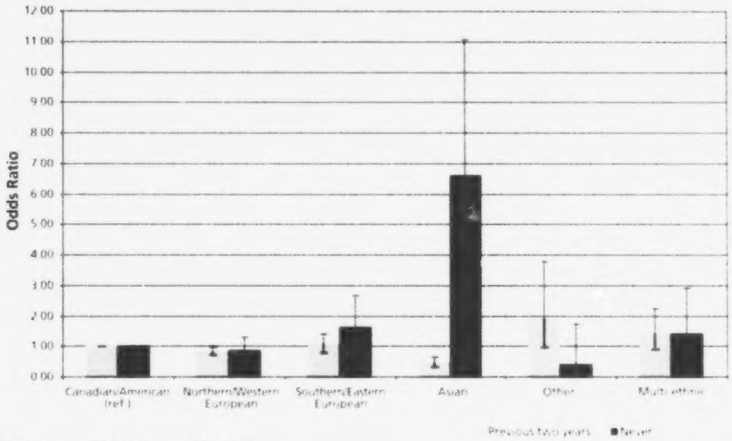
	Less than Two Years	Two Years or More	Have Never Had BP Checked
Ontario	92.9	5.0	2.1
Age			
18-24	87.3	5.0	7.7
25-44	92.3	5.7	2.1
45-64	94.5	4.8	0.7
65+	96.0	3.4	0.6
Region			
East	93.6	4.9	1.5
Central East	93.7	5.1	1.1
Toronto	93.1	3.7	3.2
Central West	92.4	4.7	2.8
Central South	90.9	7.1	2.0
South West	93.2	5.4	1.4
North	92.6	5.7	1.7
Education			
< High school	92.2	5.1	2.7
High school grad+	92.3	5.1	2.6
College/University grad	94.0	4.8	1.2
Income			
Low	91.1	5.6	3.4
Low-middle	92.6	5.4	2.0
Upper-middle	93.3	4.8	2.0
High	94.1	5.2	0.7
Unknown	92.9	4.6	2.5
Immigrant Status			
Canadian-born	93.4	5.3	1.3
Born outside Canada	91.6	4.4	4.0
Ethnic group			
Canadian/US	93.5	5.0	1.4
Northern/Western European	93.1	6.0	1.0
Southern/Eastern European	93.6	3.8	2.5
Asian	87.3	2.8	9.9
Other	92.9	3.8	3.3
Multi-ethnic	95.0	3.1	1.9

Data source: 1996/97 Ontario Health Survey

GENERAL PREVENTIVE HEALTH: BLOOD PRESSURE MONITORING

Regular monitoring of blood pressure (BP) levels is recommended from the age of 21 onward. Results from this analysis indicate that prevalence rates for BP monitoring reach very high levels by the age of 25 and appear to continue throughout the lifespan (Exhibit 18-14). The proportion of women who reported having their blood pressure checked recently was similar to the proportion who reported having a regular physician and who reported one to two visits to the doctor in the previous twelve months. There was little variation by region or income, while the apparently high rate for those with less than a high school diploma was largely explained by age. However, Exhibit 18-15 shows that once again there were significant differences by ethnic group, the odds for women of Asian origin never having had their blood pressure checked being over six times higher than they for Canadian/US women.

Exhibit 18-15. Odds Ratio for having had Blood Pressure Checked in Previous Two Years and for Never having had it Checked, Women Aged 18 and Over, by Ethnic Group, Ontario, 1996/97

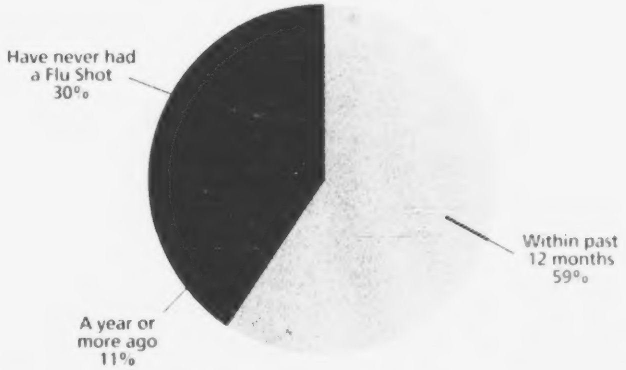


Data source 1996/97 Ontario Health Survey

GENERAL PREVENTIVE HEALTH: INFLUENZA IMMUNIZATION

The most recent MOHLTC target for influenza immunization is 70 percent of those aged 65 and over. In 1996/97 this target was reached for women with Chronic Obstructive Pulmonary Disease (COPD), which includes such conditions as emphysema, chronic bronchitis, and asthma, but was not achieved for the general population (Exhibits 18-16, 18-17). With respect to regional variations, women 65 and over in Toronto were less likely to be immunized in 1996/97 than their peers in other regions. Outside Toronto there was little variation among regions (Exhibit 18-18). There was scant evidence of any association between influenza immunization rates and either education or income; however, both education and income are of limited value as measures of SES in older adults. Living arrangement was also associated with influenza immunization. Exhibit 18-19 indicates that there was little difference in the immunization rate between women who live alone and those who live with spouses, but the rate was much lower for women who live in other types of arrangements, which may include such situations as grandparents living with children and grandchildren, or single adults living with

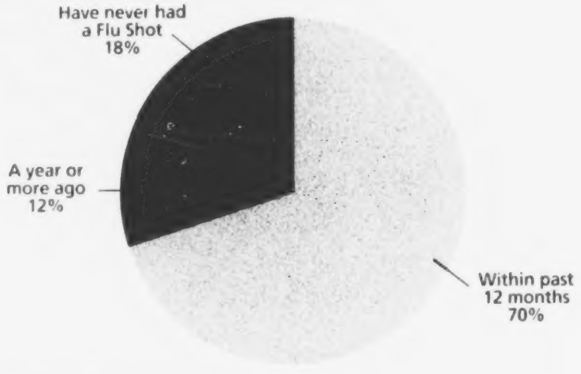
Exhibit 18-16. Time Since Last Flu Shot, All Women Aged 65 and Over, Ontario, 1996/97



Data source 1996/97 Ontario Health Survey

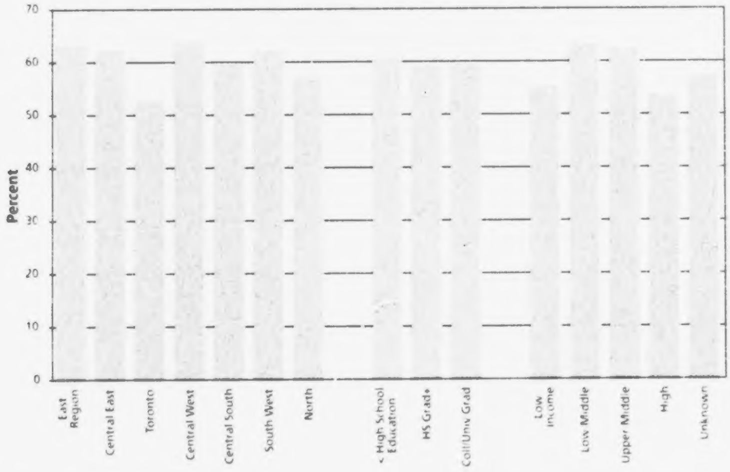
non-family members. With respect to ethnicity, no analysis by ethnic group could be carried out because of small cell sizes. When comparing women 65 and over born in Canada with their counterparts born elsewhere, the odds of having had a flu shot in the previous 12 months were significantly higher for those born in Canada, but this difference disappeared when living arrangement was controlled for.

Exhibit 18-17. Time Since Most Recent Flu Shot, Women Aged 65 and Over with Chronic Obstructive Pulmonary Disease, Ontario, 1996/97



Data source: 1996/97 Ontario Health Survey

Exhibit 18-18. Proportion of Women Reporting Influenza Immunization in the Previous 12 Months, by Region, Education, and Income, Ontario, 1996/97



Data source: 1996/97 Ontario Health Survey

Exhibit 18-19. Most Recent Flu Shot, Women Aged 65 and Over Overall, with Chronic Obstructive Pulmonary Disease (COPD), by Region, Education, Income, Living Situation, and Immigrant Status, Ontario, 1996/97(%)

	Within Past 12 Months	A Year or More Ago	Have Never Had a Flu Shot
Women 65+ with COPD	70.1	12.2	17.8
All women 65+			
Total Ontario	59.6	10.6	29.8
Region			
East	63.2	9.4	27.4
Central East	62.2	10.7	27.2
Toronto	52.7	11.0	36.3
Central West	63.8	8.3	27.9
Central South	59.6	10.2	30.2
South West	62.0	12.5	25.5
North	57.2	12.0	30.8
Education			
< High school	60.4	11.0	28.6
High school grad+	59.2	9.9	30.9
College/University grad	59.5	10.6	30.0
Income			
Low	55.3	12.9	31.8
Low-middle	63.3	9.8	26.9
Upper-middle	62.5	10.4	27.1
High	53.5	9.0	37.5
Unknown	57.3	10.5	32.2
Living situation			
Alone	61.5	11.5	27.1
W/family members	61.8	8.8	29.3
Other	39.4	15.7	45.0
Immigrant status			
Canadian-born	61.9	11.1	27.0
Born outside Canada	60.3	11.3	28.4

Data source: 1996/97 Ontario Health Survey

Exhibit 18-19. Most Recent Flu Shot, Women Aged 65 and Over Overall, with Chronic Obstructive Pulmonary Disease (COPD), by Region, Education, Income, Living Situation, and Immigrant Status, Ontario, 1996/97(%)

	Within Past 12 Months	A Year or More Ago	Have Never Had a Flu Shot
Women 65+ with COPD	70.1	12.2	17.8
All women 65+			
Total Ontario	59.6	10.6	29.8
Region			
East	63.2	9.4	27.4
Central East	62.2	10.7	27.2
Toronto	52.7	11.0	36.3
Central West	63.8	8.3	27.9
Central South	59.6	10.2	30.2
South West	62.0	12.5	25.5
North	57.2	12.0	30.8
Education			
< High school	60.4	11.0	28.6
High school grad+	59.2	9.9	30.9
College/University grad	59.5	10.6	30.0
Income			
Low	55.3	12.9	31.8
Low-middle	63.3	9.8	26.9
Upper-middle	62.5	10.4	27.1
High	53.5	9.0	37.5
Unknown	57.3	10.5	32.2
Living situation			
Alone	61.5	11.5	27.1
W/family members	61.8	8.8	29.3
Other	39.4	15.7	45.0
Immigrant status			
Canadian-born	61.9	11.1	27.0
Born outside Canada	60.3	11.3	28.4

Data source: 1996/97 Ontario Health Survey

Exhibit 18-20. Body Mass Index (BMI) by Age Group, Region, Education, Income, Immigrant Status, and Ethnic Group, Women Aged 20–64 in Ontario, 1996/97

	Underweight	About Right	Overweight		
	BMI <20	BMI 20–24.9	BMI 25–26.9	BMI 27–29.9	BMI 30+
Total Ontario	14.9	50.4	13.4	10.5	10.9
Age group					
20–24	27.3	54.6	9.3	4.8	4.0
25–44	17.1	53.9	11.5	8.2	9.4
45–64	7.8	43.9	17.5	15.6	15.1
Region					
East	13.7	48.8	14.0	11.2	12.3
Central East	12.6	53.7	14.0	9.7	10.1
Toronto	19.7	49.6	12.0	9.4	9.4
Central West	14.0	52.0	14.2	10.1	9.7
Central South	15.7	48.9	12.4	11.7	11.4
South West	13.8	51.1	13.5	10.8	10.8
North	9.9	46.2	14.8	12.9	16.2
Education					
< High school	11.3	40.0	15.1	15.4	18.2
High school grad+	15.1	52.0	13.0	9.7	10.3
College/University grad	16.3	53.3	12.9	9.3	8.3
Income					
Low	19.6	44.3	12.8	9.1	14.2
Low-middle	15.2	48.4	12.1	10.8	13.6
Upper-middle	13.5	50.4	14.0	11.6	10.5
High	14.0	54.5	15.3	8.6	7.6
Unknown	14.7	51.9	12.9	10.7	9.8
Immigrant status					
Canadian-born	13.6	49.3	13.5	11.1	12.5
Born outside Canada	14.6	49.2	15.5	11.0	9.7
Ethnic group					
Canadian/US	14.2	49.6	13.9	10.6	11.8
Northern/Western European	11.9	49.5	14.1	11.8	12.7
Southern/Eastern European	12.8	49.1	14.4	10.9	12.9
Asian	28.6	52.9	10.0	4.8	3.6
Other	13.2	49.0	10.8	15.1	11.9
Multi-ethnic	16.8	46.0	14.1	10.5	12.6

Data Source: 1996/97 Ontario Health Survey

Exhibit 18-20. Body Mass Index (BMI) by Age Group, Region, Education, Income, Immigrant Status, and Ethnic Group, Women Aged 20–64 in Ontario, 1996/97

	Underweight	About Right	Overweight		
	BMI <20	BMI 20–24.9	BMI 25–26.9	BMI 27–29.9	BMI 30+
Total Ontario	14.9	50.4	13.4	10.5	10.9
Age group					
20–24	27.3	54.6	9.3	4.8	4.0
25–44	17.1	53.9	11.5	8.2	9.4
45–64	7.8	43.9	17.5	15.6	15.1
Region					
East	13.7	48.8	14.0	11.2	12.3
Central East	12.6	53.7	14.0	9.7	10.1
Toronto	19.7	49.6	12.0	9.4	9.4
Central West	14.0	52.0	14.2	10.1	9.7
Central South	15.7	48.9	12.4	11.7	11.4
South West	13.8	51.1	13.5	10.8	10.8
North	9.9	46.2	14.8	12.9	16.2
Education					
< High school	11.3	40.0	15.1	15.4	18.2
High school grad+	15.1	52.0	13.0	9.7	10.3
College/University grad	16.3	53.3	12.9	9.3	8.3
Income					
Low	19.6	44.3	12.8	9.1	14.2
Low-middle	15.2	48.4	12.1	10.8	13.6
Upper-middle	13.5	50.4	14.0	11.6	10.5
High	14.0	54.5	15.3	8.6	7.6
Unknown	14.7	51.9	12.9	10.7	9.8
Immigrant status					
Canadian-born	13.6	49.3	13.5	11.1	12.5
Born outside Canada	14.6	49.2	15.5	11.0	9.7
Ethnic group					
Canadian/US	14.2	49.6	13.9	10.6	11.8
Northern/Western European	11.9	49.5	14.1	11.8	12.7
Southern/Eastern European	12.8	49.1	14.4	10.9	12.9
Asian	28.6	52.9	10.0	4.8	3.6
Other	13.2	49.0	10.8	15.1	11.9
Multi-ethnic	16.8	46.0	14.1	10.5	12.6

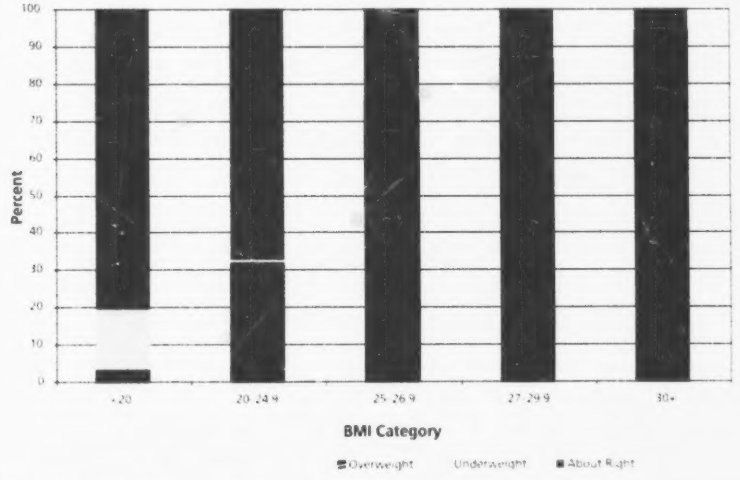
Data Source 1996/97 Ontario Health Survey

GENERAL HEALTH: BODY MASS INDEX

There is no gold standard for classifying Body Mass Index (BMI) as underweight, overweight, or "about right." In Canada, obesity is generally defined as BMI >27, and BMI between 25 and 27 is considered somewhat overweight, while BMI < 20 is defined as underweight. However, because a number of recent publications by the World Health Organization have used a BMI of 30 as the cut-point for "morbid obesity," this cut-point has been included here as well.

Using the BMI cut-points of 20 for underweight, 25 for some excess weight, and 27 for overweight, approximately 50 percent of Ontario women aged 20–64 were at about the right weight, with an additional 13 percent carrying some excess weight. Nearly 15 percent were underweight and 21 percent were overweight (Exhibits 18-20). This result is similar to the results from the 1990 Ontario Health Survey, when approximately 52 percent of women aged 20–64 were found to be of acceptable weight, 12 percent to have some excess weight, 22 percent to be overweight and 14 percent to be underweight (Ontario Ministry of Health, 1992). The proportion who are overweight (BMI greater than 27) has declined, but the underweight proportion has increased.

Exhibit 18-21. Respondent's Own Opinion About Weight Compared with Actual BMI Category, Women Aged 20–64, 1996/97

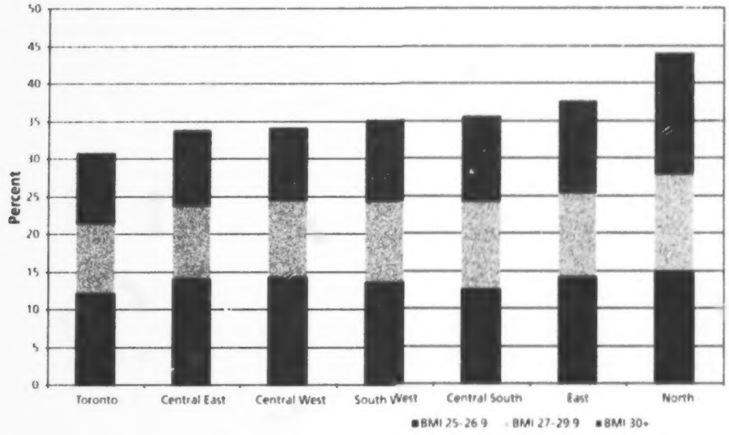


Data source: 1996/97 Ontario Health Survey

Exhibit 18-21 illustrates the congruence between respondents' perception of their weight and their actual BMI category. Most of those who are classified as overweight perceived themselves as such. However, 32 percent of those in the acceptable weight category and three percent of those defined as underweight also considered themselves to be overweight. While avoiding becoming overweight or obese is important for the prevention of high blood pressure, heart disease, and arthritis, incongruence between actual and perceived weight at the lower end of the spectrum is also cause for concern, as it may indicate a tendency toward eating disorders.

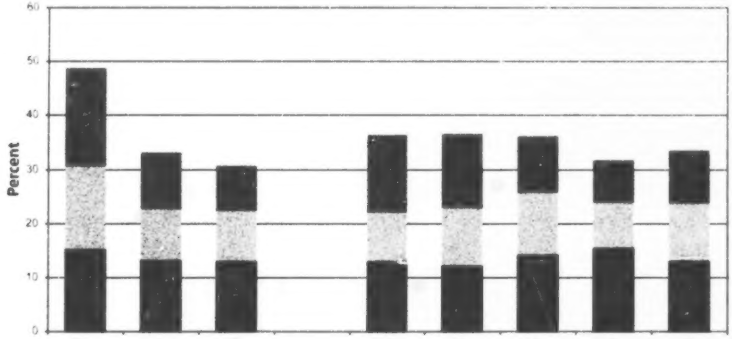
The prevalence of overweight and obesity by region is shown in Exhibit 18-22. Women in the North had the greatest prevalence of BMI over 25, with a noticeably greater proportion having a BMI greater than 30, in comparison with other regions. Education was strongly associated with higher BMI (18–23), but there was surprisingly little association by income (Exhibit 18-23). Looking across ethnic groups, Asian women were very much less likely be overweight, especially when the cut-point of BMI=27 is used (Exhibit 18-24). There was little difference in the proportion of overweight women among the other ethnic groups. Exhibit 18-25 once again illustrates the congruence, or lack thereof, between women's own opinion of their weight and their actual BMI category.

Exhibit 18-22. Proportion of Women in Ontario Aged 20–64 with BMI 25 or Higher, by Region and BMI Category



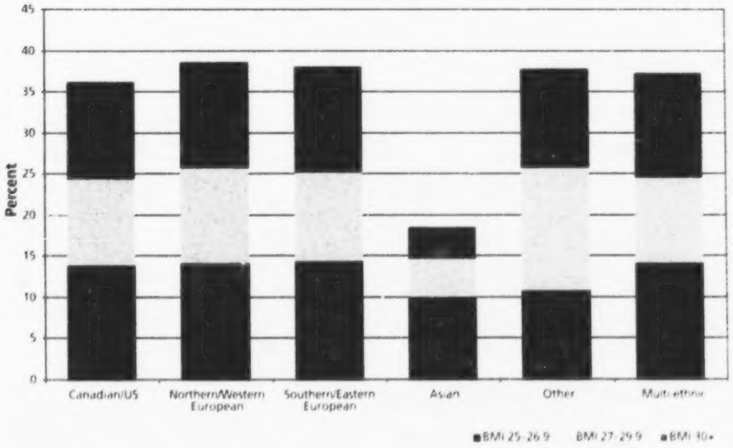
Data source: 1996/97 Ontario Health Survey.

Exhibit 18-23. Proportion of Women 20–64 with BMI 25 or Higher, by Highest Level of Education and Adjusted Income, 1996/97



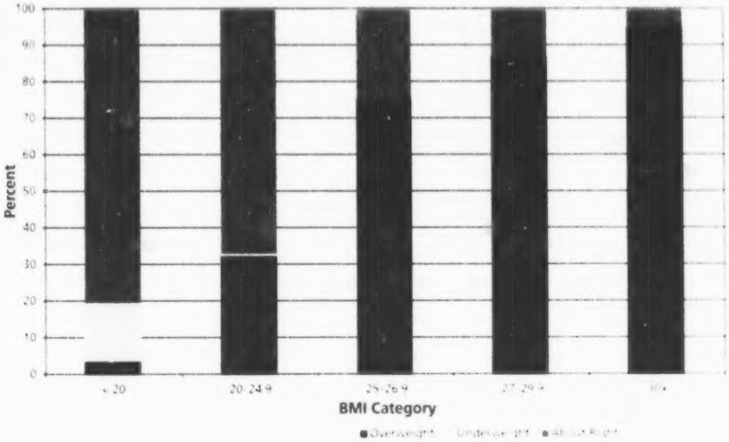
Data source: 1996/97 Ontario Health Survey

Exhibit 18-24. Proportion of Women Aged 20–64 with BMI 25 or Higher, by Ethnic Group and BMI Category, 1996/97



Data source: 1996/97 Ontario Health Survey

Exhibit 18-25. Respondent's Own Opinion About Weight Compared with Actual BMI Category, Women Aged 20–64, 1996/97



Data source: 1996/97 Ontario Health Survey

INTERPRETATION AND CONCLUSIONS

The results of this analysis contain both good news and not-so-good news for Ontario women. The good news is that, overall, women in Ontario are generally following preventive care and screening guidelines at levels that approach or even exceed provincial targets. This is particularly true of breast cancer screening. However, there remain important subgroups of the population who are still not making use of available preventive care services.

Socioeconomic status continues to be an important factor in determining whether a woman will meet cancer-screening guidelines. In their analysis of data from the 1990 Ontario Health Survey, Mercer and Goel (1997) found both income and education to be related to whether a woman had ever had a mammogram. Gentleman and Lee (1997), using data from the 1994/95 National Population Health Survey, also found an association between mammography compliance and education, but found no significant association with income. Katz and Hofer (1994) also found persistent socioeconomic disparities in breast-cancer screening in Ontario. This analysis of data from 1996/97 found an association with income, but not with education. Cervical cancer screening rates have also been found to be associated with SES (Goel, 1994; Katz & Hofer, 1994; Lee, Parsons, & Gentleman, 1998). The odds of having ever had a Pap smear, and the odds of having a test in the previous three years, have both been found to be related to both education and income.

When women who had never had a Pap smear, a mammogram, or a clinical breast exam — or who hadn't had one within the suggested time period — were asked why not, the most common response given in 1996/97 was that they didn't think it was necessary; "haven't gotten around to it" was in second place. The third most common response was that their physician didn't think it was necessary. While the proportion of women who failed to meet screening guidelines varied across SES levels, their reasons for doing so did not. This suggests that women at the lower end of the SES scale are more likely than those at the upper end of the scale to be unaware of the importance of screening.

The study by Mercer and Goel (1997) found a very strong association between mammography use and physician contact, suggesting the possibility that women in lower SES groups have less physician contact and for that reason are less likely to have a mammogram (Mercer & Goel, 1997). However, a study by Katz, Hofer, and Manning (1996) found physician consultation in Ontario to be equal to or higher among those of lower SES status than those with a higher income (Katz & Hofer, 1994). Other possible explanations may be that physicians are less likely to recommend screening to their lower SES patients or that higher SES women request preventive services more frequently. There may also be important differences in the contexts of care utilized by lower SES groups. Such differences might include lower continuity of care or practice-specific differences in ordering tests, for example. There is clearly a need for further inquiry into the mechanisms by which socioeconomic status influences the extent to which women avail themselves of preventive services.

In addition to socioeconomic status, ethnic group was also related to the use of preventive services. In comparison with Canadian/US women, women of Asian descent in particular were found to be much less likely to meet cancer-screening guidelines. There was no difference between Canadian/US women and Northern/Western European women for any of the cancer-screening procedures, but women of Southern or Eastern European descent were found to be more likely never to have had a Pap smear. In a somewhat surprising result, women of Asian origin were also found to have much higher odds of never having had their blood pressure checked.

One might expect the above result to be explained by immigration status — for example, Asian women might be more likely to be recent immigrants who are unfamiliar with the Canadian health-care system. There might be a language barrier that prevents women from fully understanding the importance of such measures. However, this does not appear to be the case, as all the odds ratios in this study are adjusted for immigrant status. Again, more research is needed into the specific barriers or disincentives experienced by Asian women. Possible areas of investigation include cultural mores and beliefs, choice of health-care provider, and even the possibility of perception on the part of either the health-care provider or the woman that her cancer or heart disease risk is so low that cancer screening and blood pressure monitoring are not necessary.

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APPENDIX A. GUIDELINES AND TARGETS FOR PREVENTIVE HEALTH MEASURES

Health Service/ Measure	**Target Population**	**Recommendation from The CTFPHC**	**Targets Set by MOHLTC**
Clinical breast exam	Women 50–69 yrs	Good evidence to support annual breast cancer screening by clinical exam and mammography	70% of women receiving screening by 2010
Screening mammography	Women 50–69 yrs	Good evidence to support annual breast cancer screening by clinical exam and mammography	70% of women receiving screening by 2010
Papanicolaou smear screening for cervical cancer	Women 18–69; women younger than 18 if sexually active	Every women should be screened at least once in her life. Periodic screening should begin at age 18 or at onset of sexual activity; after two normal smears, screen every three years until age 69.	Increase the proportion of women ever screened to 95% by 2010, and proportion meeting guidelines of Ontario Cervical Screening Collaborative Group to 85%
Blood pressure monitoring	All adults 21 yrs and over	Good evidence to check blood pressure as part of periodic health exam, as early detection and control of hypertension linked to reductions in heart disease and stroke morbidity and mortality	Ministry has set targets of reducing mortality from ischemic heart disease by 25% by 2010, from stroke by 10% by 2010 and morbidity from hypertension (magnitude of reduction not specified)
Influenza immunization	All groups at high risk of complications: adults 65 yrs and over; institutionalized individuals; those with chronic heart disease, pulmonary disease, diabetes, who are immunocompromised,	Annual immunization	70% of those 65 yrs and over
Body mass index	General population	No firm recommendation for regular BMI measurement, not because maintaining BMI <27 is not important for health, but because there is a lack of effective, long-term weight-reduction measures	To slow the decrease in the proportion of adults age 20–64 with healthy weight status (BMI 20–27) by 2010

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Papanicolaou smear screening for cervical cancer	Women 18–69, women younger than 18 if sexually active	Every women should be screened at least once in her life Periodic screening should begin at age 18 or at onset of sexual activity; after two normal smears, screen every three years until age 69	Increase the proportion of women ever screened to 95% by 2010, and proportion meeting guidelines of Ontario Cervical Screening Collaborative Group to 85%
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APPENDIX B. ALGORITHM USED TO ASSIGN OHS II RESPONDENTS TO A SINGLE ETHNIC GROUP.

Based on Survey Questions sdc6_4a-s; sdc6_1; sdc6drac

Algorithm A

Possible Ethnic Groups (sdc6_4a-s) (may select more than one)	**Country of Birth* (sdc6_1)**	**Race* (sdc6drac)**	**Ethnic Group 1 (ten categories)**	**Ethnic Group 2 (six categories)**
Canadian			Canadian/US	Canadian/US
North American Indian Metis Inuit/Eskimo			Aboriginal	Canadian/US
French English German Scottish Irish Dutch (Netherlands) Italian			Northern/Western European	Northern/ Western European
Ukrainian Polish Portuguese			Southern/Eastern European	Southern/Eastern European
Chinese			East Asian	Asian
South Asian			South/West Asian	Asian
Jewish			Jewish	Other
Black			Black	Other
Other	Canada		Canadian/US	Canadian/US
	China		East Asian	Asian
	France		Northern/Western European	Northern/Western European
	Germany		Northern/Western European	Northern/Western European
	Greece		Southern/Eastern European	Southern/Eastern European
	Guyana		Caribbean/South Am/ Central Am/ Latin Am	Other
	Hong Kong		East Asian	Asian
	Hungary		Southern/Eastern European	Southern/Eastern European
	India		South/West Asian	Asian
	Italy		Southern/Eastern European	Southern/Eastern European
	Jamaica		Caribbean/South Am/ Central Am/ Latin Am	Other
	Netherlands/Holland		Northern/Western European	Northern/Western European
	Philippines		East Asian	Asian
	Poland		Southern/Eastern European	Southern/Eastern European
	Portugal		Southern/Eastern European	Southern/Eastern European

Algorithm A *Continued*

Possible Ethnic Groups (sdc6_4a-s) (may select more than one)	**Country of Birth* (sdc6_1)**	**Race* (sdc6drac)**	**Ethnic Group 1 (ten categories)**	**Ethnic Group 2 (six categories)**
	United Kingdom		Northern/Western Europe	Northern/Western European
	United States		Canadian/US	Canadian/US
	Vietnam		East Asian	Asian
	Other	White	Undefined	Unknown
		Black	Black	Other
		Korean	East Asian	Asian
		Filipino	East Asian	Asian
		Japanese	East Asian	Asian
		Chinese	East Asian	Asian
		Aboriginal	Aboriginal	Canadian/US
		South Asian	South West Asian	Asian
		South East Asian	East Asian	Asian
		Arab and West Asian	South West Asian	Asian
		Latin American	Caribb./South Am/Cent. Am./Latin American	Other
		Multiple Race	Multi	Multi
		Not stated	Undefined	Unknown
	Don't know			Unknown
	Refusal			Unknown

* [illegible]

APPENDIX B. ALGORITHM USED TO ASSIGN OHS II RESPONDENTS TO A SINGLE ETHNIC GROUP.

Based on Survey Questions sdc6_4a-s; sdc6_1; sdc6drac

Algorithm A

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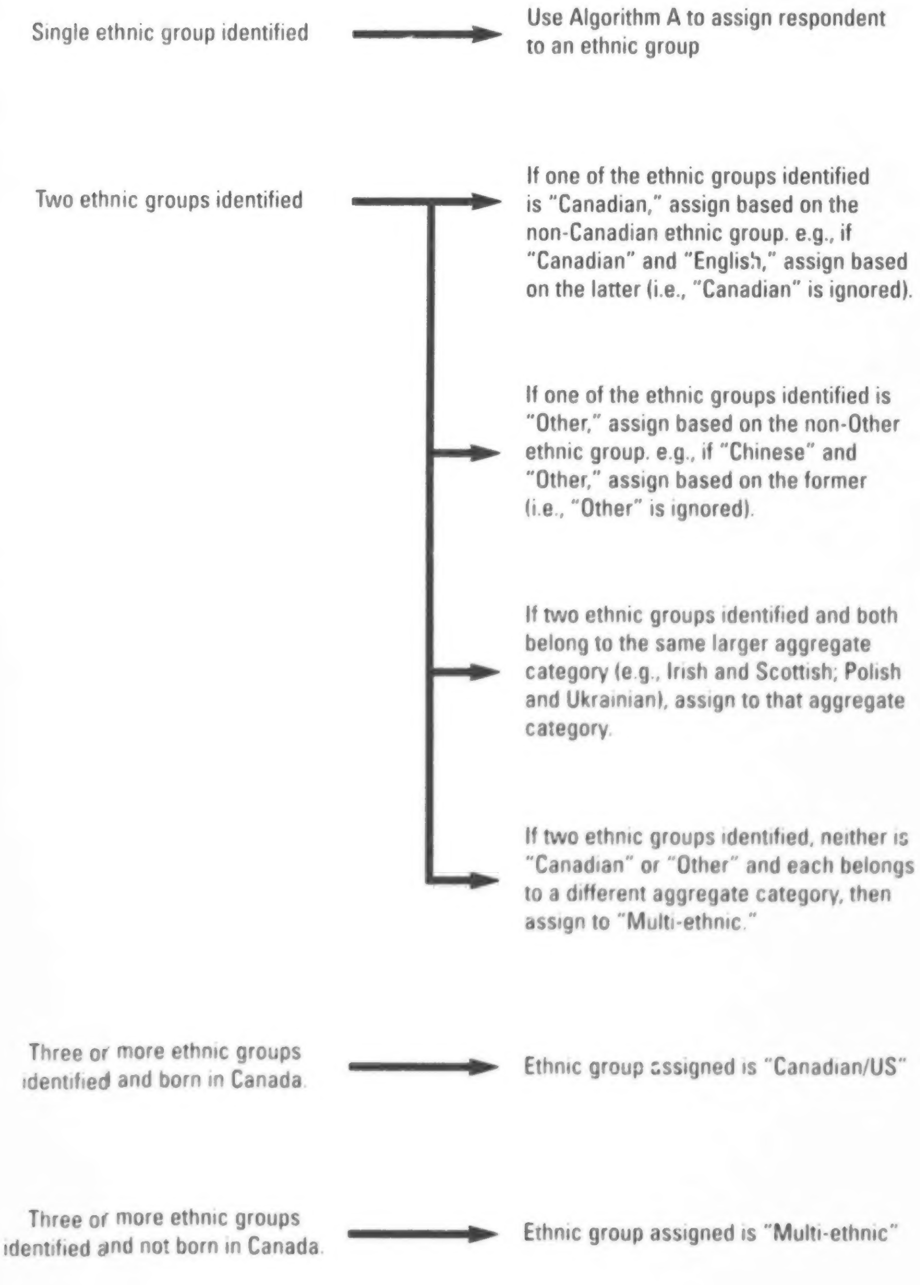
Canadian			Canadian/US	Canadian/US
North American Indian Métis Inuit/Eskimo			Aboriginal	Canadian/US
French English German Scottish Irish Dutch (Netherlands) Italian			Northern/Western European	Northern/ Western European
Ukrainian Polish Portuguese			Southern/Eastern European	Southern/Eastern European
Chinese			East Asian	Asian
South Asian			South/West Asian	Asian
Jewish			Jewish	Other
Black			Black	Other
Other:	Canada		Canadian/US	Canadian/US
	China		East Asian	Asian
	France		Northern/Western European	Northern/Western European
	Germany		Northern/Western European	Northern/Western European
	Greece		Southern/Eastern European	Southern/Eastern European
	Guyana		Caribbean/South Am/ Central Am/ Latin Am.	Other
	Hong Kong		East Asian	Asian
	Hungary		Southern/Eastern European	Southern/Eastern European
	India		South/West Asian	Asian
	Italy		Southern/Eastern European	Southern/Eastern European
	Jamaica		Caribbean/South Am/ Central Am/ Latin Am.	Other
	Netherlands/Holland		Northern/Western European	Northern/Western European
	Philippines		East Asian	Asian
	Poland		Southern/Eastern European	Southern/Eastern European
	Portugal		Southern/Eastern European	Southern/Eastern European

Algorithm A *Continued*

Possible Ethnic Groups (sdc6_4a-s) (may select more than one)	Country of Birth* (sdc6_1)	Race* (sdc6drac)	Ethnic Group 1 (ten categories)	Ethnic Group 2 (six categories)
	United Kingdom		Northern/Western Europe	Northern/Western European
	United States		Canadian/US	Canadian/US
	Vietnam		East Asian	Asian
	Other:	White	Undefined	Unknown
		Black	Black	Other
		Korean	East Asian	Asian
		Filipino	East Asian	Asian
		Japanese	East Asian	Asian
		Chinese	East Asian	Asian
		Aboriginal	Aboriginal	Canadian/US
		South Asian	South/West Asian	Asian
		South East Asian	East Asian	Asian
		Arab and West Asian	South/West Asian	Asian
		Latin American	Caribb./South Am./Cent. Am./Latin American	Other
		Multiple Race	Multi	Multi
		Not stated	Undefined	Unknown
	Don't know			Unknown
	Refusal			Unknown

* *Additional information from sdc6_1 and sdc6drac was used only in cases where a respondent gave only one ethnic group and that group was [illegible]. When more than one ethnic group was identified, one of which was "Other", the latter was ignored.*

APPENDIX C. CLASSIFICATION BY ETHNIC GROUP WHEN SINGLE AND MULTIPLE ETHNICITY REPORTED



Single ethnic group identified → Use Algorithm A to assign respondent to an ethnic group

Two ethnic groups identified →

- If one of the ethnic groups identified is "Canadian," assign based on the non-Canadian ethnic group. e.g., if "Canadian" and "English," assign based on the latter (i.e., "Canadian" is ignored).
- If one of the ethnic groups identified is "Other," assign based on the non-Other ethnic group. e.g., if "Chinese" and "Other," assign based on the former (i.e., "Other" is ignored).
- If two ethnic groups identified and both belong to the same larger aggregate category (e.g., Irish and Scottish; Polish and Ukrainian), assign to that aggregate category.
- If two ethnic groups identified, neither is "Canadian" or "Other" and each belongs to a different aggregate category, then assign to "Multi-ethnic."

Three or more ethnic groups identified and born in Canada. → Ethnic group assigned is "Canadian/US"

Three or more ethnic groups identified and not born in Canada. → Ethnic group assigned is "Multi-ethnic"

CHAPTER 19 – CANCER SCREENING

VERNA MAI

BACKGROUND

The purpose of cancer screening is to identify individuals with early, asymptomatic cancers. These individuals can be more successfully treated than patients who first present with symptoms of cancer. The usual objective of population cancer screening is to reduce mortality. Cancer screening may also reduce morbidity, improve quality of life, and reduce health-care costs (Screening Working Group of the Canadian Strategy for Cancer Control, 2000).

There are three potential cancer sites for which the effectiveness of screening has been clearly demonstrated in terms of a mortality benefit: the breast, the cervix, and the colorectum. Screening recommendations for these three cancer sites have been formulated and updated periodically by the Canadian Task Force on Preventive Health Care.

The Canadian Task Force on Preventive Health Care was established at the 1976 conference of the ten provincial deputy ministers of health. It developed a methodology for weighing scientific evidence in order to make recommendations for or against including preventive manoeuvres in the periodic health exam of asymptomatic people. The grading of recommendations is shown in Exhibit 19-1.

Exhibit 19-1. Canadian Task Force on Preventive Health Care (PHE): Grades of Recommendation

A	Good evidence to support the recommendation that the condition be specifically considered in a PHE
B	Fair evidence to support the recommendation that the condition be specifically considered in a PHE
C	Poor evidence regarding inclusion or exclusion of a condition in a PHE, but recommendations may be made on other grounds
D	Fair evidence to support the recommendation that the condition be specifically excluded from consideration in a PHE
E	Good evidence to support the recommendation that the condition be specifically excluded from consideration in a PHE

The Canadian Task Force on Preventive Health Care recommendations for cancer screening are outlined in Exhibit 19-2, including the year they were last reviewed (Canadian Task Force on Preventive Health Care, 1998a; Canadian Task Force on Preventive Health Care, 1998b; Canadian Task Force on Preventive Health Care, 2001a; Canadian Task Force on Preventive Health Care, 2001b; Canadian Task Force on Preventive Health Care, 2001c).

In addition to evidence of effectiveness from screening trials and observational studies of screening tests, evidence is beginning to emerge about the increased effectiveness of the organized delivery of screening through programmatic approaches over opportunistic or ad hoc screening (Nieminen, Kallio, Anttila, & Hakama, 1999; Tabar et al., 2001). The small body of literature on this topic in existence today reflects the relatively recent implementation of organized screening programs in communities worldwide with varying degree of organization. It should be noted, however, that the randomized clinical trials that form the evidentiary basis for organized screening programs assessed the organized programs, not simply the screening test.

Exhibit 19-2. Cancer Screening Guidelines, Canadian Task Force on Preventive Health Care

Manoeuvre	Effectiveness	Recommendation
Clinical examination and mammography in women aged 50–69 years	Routine clinical examination and mammography reduce mortality from breast cancer; optimum frequency of screening has not been determined	There is good evidence for screening women aged 50–69 years by clinical examination and mammography (A) The best available data support screening every one–two years. 1998
Mammography every 12–18 months in women aged 40–49 years at average risk	Relative risk reduction of 18%–45% for breast cancer mortality at ten years was shown in two trials and one meta-analysis; no benefit was shown in six other trials	Current evidence does not support the recommendation that screening mammography be included in or excluded from the periodic health examination of women aged 40–49 at average risk of breast cancer (C) 2001
Routine teaching of BSE to women aged 40–49 years and 50–69 years	Evidence of no benefit in terms of survival from breast cancer Evidence of increased no. of physician visits for breast problems and increased rate of benign biopsy results	Because there is fair evidence of no benefit and good evidence of harm, there is fair evidence to recommend that routine teaching of BSE be excluded from the periodic health examination of women aged 40–49 (D) 2001
Papanicolaou smear in women who have been sexually active	Cervical smears reduce the risk of developing invasive carcinoma of the cervix in women who have been sexually active	Fair evidence to include in periodic health examination of sexually active women (B) 1992
Multiphase screening with the Hemoccult test for average risk adults > age 50	Relative risk of colorectal cancer death with screening with Hemoccult testing is 0.84 (95% CI 0.77-0.93) in those who are compliant over ten years	Good evidence to include screening with annual or biennial Hemoccult test in the periodic health examination (PHE) of patients >50 (A) 2001
Sigmoidoscopy for average risk adults > age 50	Patients with rectal cancers were less likely to have had a sigmoidoscopy in the previous ten years	Fair evidence to include screening with flexible sigmoidoscopy in the PHE of patients >50 (B) 2001
Hemoccult/sigmoidoscopy in combination for average risk adults > age 50	Some evidence that the addition of flexible sigmoidoscopy increases the detection rate of adenomas and colorectal cancer; no mortality data	Insufficient evidence to make recommendations about whether only one or both of FOBT and sigmoidoscopy should be performed (C) 2001
Colonoscopy for average risk adults	Indirect evidence from RCT showing decreased colorectal cancer mortality	Insufficient evidence to include or exclude colonoscopy from PHE (C) 2001

Data source: http://www.ctfphc.org

METHODS

Descriptive data included in this chapter come from four sources:

1. The Ontario Breast Screening Program (OBSP).
2. The Canadian Breast Screening Database: This is a national breast screening surveillance system, established in 1993, that furthers collaboration in monitoring and evaluating organized breast-cancer screening across Canada. It is operated by Health Canada and collects data from provincial screening programs.
3. Ontario Health Insurance Plan mammography billing data obtained from the Ministry of Health and Long-Term Care in Ontario.
4. Pap testing data from CytoBase: This is a patient-centred computerized medical record of cytology reports which is owned by a not-for-profit corporation called INSCYTE, which was formed by six private medical laboratories.

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Multiphase screening with the Hemoccult test for average risk adults > age 50	Relative risk of colorectal cancer death with screening with Hemoccult testing is 0.84 (95% CI 0.77-0.93) in those who are compliant over ten years	Good evidence to include screening with annual or biennial Hemoccult test in the periodic health examination (PHE) of patients >50. (A) 2001
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4. Pap testing data from CytoBase: This is a patient-centred computerized medical record of cytology reports which is owned by a not-for-profit corporation called INSCYTE, which was formed by six private medical laboratories.

INTERPRETIVE CAUTIONS

In regard to data on breast screening, it is noted that only data originating from the OBSP are included in most instances. Thus, the possibility of generalizing the findings to the entire population of women participating in mammography screening in Ontario may be limited. The outcomes and indicators monitored by the OBSP are not routinely monitored in the usual delivery of health-care services outside of organized screening. In addition, while mammography billing data have been presented to give a more complete estimate of participation in breast screening, these data are not specific to screening, nor are they person-specific. Thus, it may be inappropriate to extrapolate from these data as if they are valid indicators of participation in regular, high quality mammography screening.

In regard to CytoBase data on Pap testing, only private laboratory data are included. No hospital data are available. In addition, the Pap tests registered in CytoBase represent tests carried out for diagnostic work-up as well as for screening. However, it is likely that the vast majority of Pap tests read by private laboratories are intended for screening purposes.

BREAST CANCER SCREENING IN ONTARIO

Data on breast screening in Ontario is available and reliable only for screening mammography that is provided through the Ontario Breast Screening Program. These data are presented with the understanding that they provide only a partial picture of the extent and quality of breast screening in Ontario. Outside of the Ontario Breast Screening Program, there is very little comparable information available to report on the extent and outcomes of mammography screening.

Organized breast-screening programs have been set up in almost all Canadian provinces and territories to provide high quality breast-screening services to women in the target age group of 50–69 (Paquette et al., 2000). In 1988, the Federal, Provincial, and Territorial Deputy Ministers of Health endorsed the recommendation that Canadian women aged 50 to 69 should be offered and encouraged to participate in an early detection program consisting of mammography, physical examination of the breasts by a health care professional, and the teaching of breast-self examination offered through dedicated screening centres. The Ontario Breast Screening Program (OBSP), established in 1990, is Ontario's organized breast-screening program, which is operated by Cancer Care Ontario and funded by the Ontario Ministry of Health and Long-Term Care. The scientific evidence of benefit from regular breast screening has been well established from several randomized clinical trials. While there have been negative trials, i.e., trials that have not shown a benefit from screening, on balance, the evidence does favour screening.

In October, 2001 a research letter was published in the *Lancet*, reporting that the results of a meta-analysis of the trials on breast screening (previously published in the *Lancet* in 2000) were confirmed with the completion of a Cochrane review (Gotzsche & Olsen, 2000; Olsen & Gotzsche, 2001). The authors reviewed two out of eight mammography randomized clinical trials in a meta-analysis, eliminating six that they considered inadequately randomized, and concluded that screening for breast cancer with mammography is unjustified. All six studies eliminated from the review had found a reduction in breast-cancer mortality with screening. When the authors' conclusion was reported in 2000, the media picked up the story with headlines such as "Screening for breast cancer a waste: study" (Evenson, 2000).

Aside from the public confusion this statement created about breast screening, it should be noted that this meta-analysis is just one review of many in the literature and that the preponderance of existing evidence does strongly support breast screening for women aged 50 to 69. A Working Group convened by the International Agency for Research on Cancer of the World Health Organisation (WHO) recently evaluated all of the available evidence on breast cancer screening and concluded that trials have provided sufficient evidence for the efficacy of mammography screening of women between 50 and 69 (International Agency for Research on Cancer, 2002). It considered many of the criticisms of the Cochrane reviewers to be unsubstantiated. The Working Group also noted that organized screening programs are more effective in reducing the rate of death from breast cancer than sporadic screening of selected groups of women.

Evidence about the effectiveness of screening mammography for women aged 40–49 has also been debated extensively in the literature. The publication of longer follow-up from trials involving women who started breast screening in their 40s prompted the Canadian Task Force on Preventive Health Care to update their 1994 review of this intervention. An updated recommendation, published in 2001 (Ringash, 2001), upgraded mammography screening for women in their 40s from a "D" recommendation to a "C" recommendation. The recommendation states: "Upon reaching the age of 40 Canadian women should be informed of the potential benefits and risks of screening mammography and assisted in deciding at what age they wish to initiate the manoeuvre" (Ringash, 2001). Currently, the OBSP age eligibility criteria start at age 50. The usual practice of organized breast-screening programs in Canada is to accept women aged 40 to 49 into the program, but not to engage in active recruitment of this group. This practice provides access to an organized program for women who have started screening in this age group. Ontario, Saskatchewan, and Newfoundland are the only three provinces that do not provide program access.

Women residing in Ontario are eligible to join the Ontario Breast Screening Program if they are over 50 years of age, asymptomatic, have no history of breast cancer, and have not had a mammogram within the previous 12 months. The program offers screening mammography, clinical breast examination by a trained nurse examiner at most locations, and instruction in breast self-examination to women who want this information. In addition, the program provides educational materials to women and health-care providers, recruitment initiatives, the option of self-referral to the program, automatic recall of women for their next screen, follow-up tracking of women with an abnormal screen result, quality assurance for all screening components, and routine program evaluation (Cancer Care Ontario, 2001).

In Ontario, doctors may refer women to any of the radiological facilities that provide mammography for a screening mammogram. There are approximately 240 mammography facilities in Ontario. One-third of these sites (82) currently provide OBSP screening for eligible women. These include nine regional hub centres, 73 affiliated sites, and a mobile van service in Northwestern Ontario. The other non-OBSP sites also provide screening mammography services through the usual "diagnostic" mammography services.

The OBSP has been expanding since 1998 by affiliating with existing mammography facilities that have achieved accreditation by the Canadian Association of Radiologists (CAR). In Ontario, the Mammography Accreditation Program of the

CAR is voluntary for mammography facilities. Over 20 sites have become affiliates in each of the past two years, entering into a partnership with the OBSP to provide eligible women with screening mammography that has all the components of the organized program.

PARTICIPATION IN THE OBSP

Data from the 1996/97 National Population Health Survey indicate that 53 percent of Ontario women aged 50 to 69 reported having had a screening mammogram within the previous two years (Statistics Canada, 2001). During the same time period, 12 percent of women in that age group received screening at the OBSP (Cancer Care Ontario, 1999a). The difference in self-reported screening rates and OBSP participation rates is due in large part to the high prevalence of breast screening that occurs in the non-OBSP sites. The most recent OBSP data from 1999/2000 show a further increase in participation to approximately 17 percent of the target age group (Cancer Care Ontario, 2001).

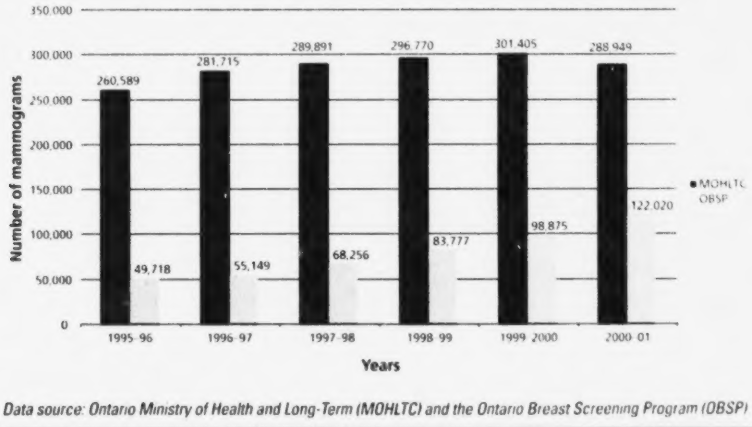
A recent analysis of breast-screening data from the National Population Health Survey identified the three most common reasons women gave for not having had a mammogram in the previous two years: they didn't think it was necessary (56 percent); they hadn't gotten around to it (26 percent); and the doctor didn't think it was necessary (12 percent) (Maxwell, Bancej, & Snider, 2001).

This array of reasons implies there is still a great need to educate women and doctors about the benefits of breast screening. Organized supports in the system to assist women to "get around to it," such as population-based invitation letters and reminders when it's time for the next screen, would also benefit busy women. Currently, women who attend the OBSP do receive reminders; however, the OBSP has not been able to implement population-based invitations to attend screening to women in the target age group because it has not received Ministry of Health and Long-Term Care support to do so. Finally, improving the number of accredited facilities in Ontario and ensuring that all women eligible for screening are able to participate in the OBSP would enhance the quality of screening services for all women.

A review of the literature on how to influence health risk behaviour identified key policy recommendations to promote Pap testing and mammography screening (Ontario Women's Health Council, 2000). These included policies targeting family physicians, community outreach with culturally appropriate approaches, and strategies to increase the accessibility of services.

The goal of the OBSP is to reach 70 percent of eligible women in Ontario. Attaining this goal would result in the screening of approximately 350,000 women aged 50 to 69 each year. The current number of women screened in the OBSP in each of the last five fiscal years is shown in Exhibit 19-3.

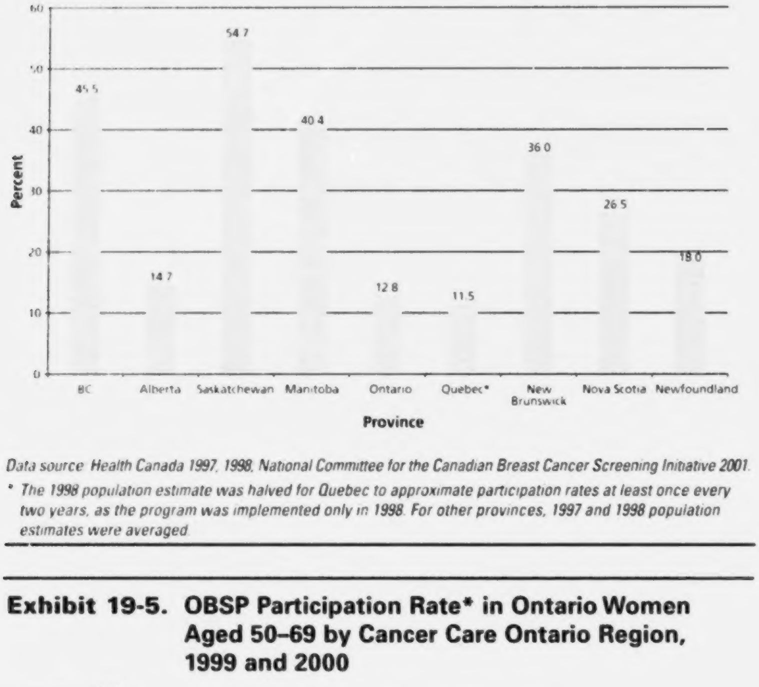
Exhibit 19-3. Mammograms by Age Group 50–69, 1995–2001



Data source: Ontario Ministry of Health and Long-Term (MOHLTC) and the Ontario Breast Screening Program (OBSP)

There has been a 20 percent growth in the number of screens in each of the last three years with the active expansion of the OBSP. Also shown in Exhibit 19-3 is the annual number of OHIP billings for bilateral mammography. This number represents non-OBSP mammography and includes both diagnostic and screening mammograms. However, it has been estimated that over 80 percent of mammography billings are for screening mammography. These data demonstrate the large component of mammography screening that takes place outside of the organized screening program. In the year 2000/01, the volume of OHIP billings decreased from the previous year, likely reflecting the shift of more screening to OBSP that accompanied the increasing number of participating affiliate sites.

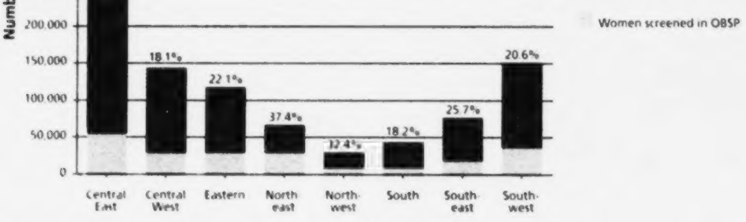
Exhibit 19-4. Proportion of Women Aged 50–69 Who Participated in Organized Provincial Breast Cancer Screening Programs in 1997 and 1998



Data source: Health Canada 1997, 1998, National Committee for the Canadian Breast Cancer Screening Initiative 2001.

** The 1998 population estimate was halved for Quebec to approximate participation rates at least once every two years, as the program was implemented only in 1998. For other provinces, 1997 and 1998 population estimates were averaged.*

Exhibit 19-5. OBSP Participation Rate* in Ontario Women Aged 50–69 by Cancer Care Ontario Region, 1999 and 2000



Data source: Ontario Breast Screening Program Annual Report 2000/01.

** Participation rate is the number of women 50–69 at screening who participated in OBSP as a proportion of the target population (based on 1996 census data projections for years 1999 and 2000).*

While the total participation of women aged 50 to 69 in screening mammography could be as high as 65 percent if both OBSP screens and non-OBSP screening estimates are combined, the data show that the majority of women are screened without the benefit of participating in Ontario's organized program, the OBSP. (Benefits include educational materials on breast screening, result letters to both women and their doctors, mammography sites that are accredited by the Canadian Association of Radiologists, follow-up monitoring of all abnormal screens, reminder letters to women when it is time for the next screen, and a comprehensive quality assurance and control program.) The success of screening programs in reducing mortality from breast cancer in the population depends on achieving high attendance rates for regular screening. Exhibit 19-4 summarizes participation rates in organized breast screening programs across the provinces, showing rates ranging from 11.5 percent to 54.7 percent, well below the targeted 70 percent participation rate (Health Canada, 2001). In several provinces, population effectiveness has been maximized by the required participation of all screening facilities in the provincial breast-screening programs.

Participation in the OBSP varies across the Cancer Care Ontario regions, ranging from a low of 10.3 percent in the Central East to a high of 37 percent in the Northeast, as shown in Exhibit 19-5.

In a commentary on organized breast screening, Miller notes that "it is time for the family physicians of Canada to ensure that their patients attend the organized breast cancer screening program in their area, where high quality will be guaranteed. Only then will we begin to reap the benefits of the considerable investment already made in breast cancer screening in Canada" (Miller, 2000).

BREAST ASSESSMENT

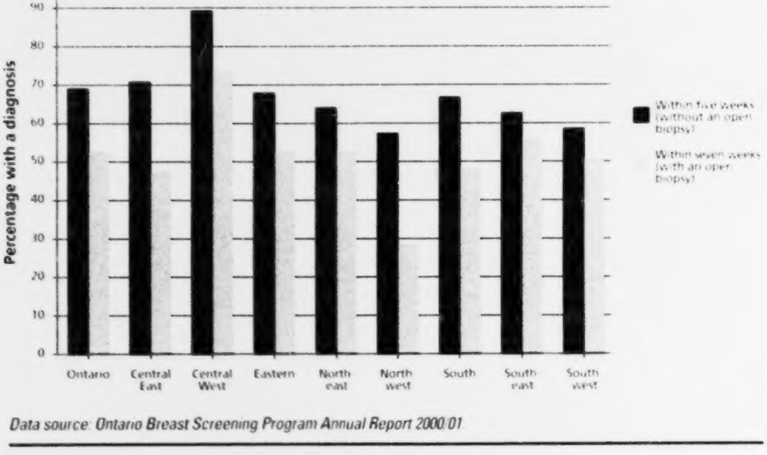
A key step that has an impact on early detection of breast cancer is the follow-up investigation of an abnormal screen result, also known as breast assessment. The diagnostic process after an abnormal breast-screening examination involves notification of the result to the client and family physician; referral for diagnostic breast imaging; surgical consultation and, if needed, a biopsy to reach a final diagnosis. Breast assessment should consist of timely, high-quality investigative services. It has been well documented that receiving an abnormal screen result is very stressful for many women, and that anxiety may persist for months after the final diagnosis has been reached, even for those who do not have cancer (Health Canada, 2000).

Timeliness targets for a diagnosis to be reached following an abnormal screen result were established by the Canadian Breast Cancer Screening Initiative in 2000 (Health Canada, 2000). The targets are:

- For women not having an open biopsy, 90 percent or more should be diagnosed within five weeks.
- For women having an open biopsy, 90 percent or more should be diagnosed within seven weeks.

Data from the OBSP, which track the follow-up procedures and the date of the final diagnostic outcome (cancer or no cancer), provide information on how Ontario performs relative to the national timeliness targets (Cancer Care Ontario, 2001). Overall, 69 percent of women not requiring an open biopsy were diagnosed within five weeks and 53 percent of women requiring an open biopsy completed their diagnostic follow-up within seven weeks. Exhibit 19-6 illustrates the variation across the different regions on Ontario. While the available Ontario data on breast assessment are limited to the experience of OBSP participants, they do indicate there is a need for improvement if Ontario is to achieve national standards across all regions.

Exhibit 19-6. Time to Final Diagnosis by Cancer Care Ontario Region, 1999



Data source: Ontario Breast Screening Program Annual Report 2000/01

CERVICAL CANCER SCREENING

Cancer of the cervix can be prevented by regular Pap testing to detect cancerous or precancerous lesions of the cervix. The Ontario Cervical Screening Program has produced the following cervical screening guidelines for Ontario:

- Women of all ages who are, or ever have been, sexually active should be screened.
- After three normal Pap tests at one-year intervals, screening should be continued every two years.
- If there have been four normal Pap tests in the previous ten years, screening may be discontinued after the age of seventy.

Guidelines for the follow-up of an abnormal Pap test result have also been produced and distributed to physicians in Ontario (Mai, 2000).

Cancer Care Ontario and the Ministry of Health and Long-Term Care officially launched the Ontario Cervical Screening Program in June 2000. The program will support education, recruitment, and recall activities, working with health care providers in Ontario. A comprehensive provincial cervical screening information system has been planned to facilitate follow-up, recall, and evaluation activities.

Because of legislative barriers, Cancer Care Ontario does not have access to all of the information necessary to carry out the organized screening functions of population-based recruitment, recall and follow-up, or evaluation of screening outcomes.

Currently, the only functional component of the information system is the cytology registry, CytoBase. CytoBase, owned by a not-for-profit corporation called INSCYTE, now captures over 94 percent of Pap smears read in community (private) laboratories in the province. Participation of the laboratories in CytoBase is voluntary and is based on the usual provision of medical care. Although no hospital laboratory data have been submitted to CytoBase, it is estimated that over 80 percent of all Pap smears read in Ontario are in the database. Even without a complete Pap registry, CytoBase does provide very useful information. For example, planning is underway to support laboratories in sending reminder lists of women overdue for a Pap test back to the women's practitioners.

The CytoBase data for 2000 shown in Exhibit 19-7 demonstrate the decreased likelihood of a woman having a recent Pap test with increasing age. There is a mismatch between the incidence of cervical cancer and Pap test utilization: as age increases, the incidence of cervical cancer increases but Pap test utilization decreases. In addition to older women, other groups of women in Ontario who are less likely to have had a regular Pap test are recent immigrants to Canada, women of aboriginal origin, and women with a lower level of

Exhibit 19-7. Percent of Women in Ontario Who Had a Pap Test in 2000, by Age Group

Age Group	Number of Women with a Pap Test in 2000*	Ontario Female Population**	Percent of Women with a Pap Test in 2000
20-24	138,601	373,121	37.15%
25-29	166,717	403,139	41.35%
30-34	179,297	447,352	40.08%
35-39	187,858	522,281	35.97%
40-44	163,720	489,729	33.43%
45-49	138,304	431,593	32.04%
50-54	118,176	384,437	30.74%
55-59	80,126	292,726	27.37%
60-64	57,064	245,945	23.20%
65-69	42,354	227,199	18.64%
70-74	25,049	210,356	11.91%
75-79	12,952	182,578	7.09%
80-84	4,086	113,815	3.59%
85-89	1,121	69,767	1.61%
90+	251	37,794	0.66%
Total	1,315,676	4,431,831	29.69%

Data source: INSCYTE Corporation, 2000 CytoBase Report, Vol. 4 (1), December 2000

* *Taken from total by age group of the distribution of the most severe diagnosis for women by age and class*

** *Demography Division, Statistics Canada: preliminary post-census estimates for 2000 Ontario population*

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The CytoBase data for 2000 shown in Exhibit 19-7 demonstrate the decreased likelihood of a woman having a recent Pap test with increasing age. There is a mismatch between the incidence of cervical cancer and Pap test utilization; as age increases, the incidence of cervical cancer increases but Pap test utilization decreases. In addition to older women, other groups of women in Ontario who are less likely to have had a regular Pap test are recent immigrants to Canada, women of aboriginal origin, and women with a lower level of education (Goel, 1994). Other barriers to cervical screening include anxiety about the procedure, lack of awareness about the benefits of a regular Pap test, and low access to services in rural areas (Health Canada, 1998).

Strategies to reach these groups will need to be multifaceted and culturally appropriate, and should involve local community leaders, including key health-care providers such as public health units. A systematic review of the literature on community-based strategies to promote cervical-cancer screening recommended the combined use of mass media campaigns with provider education/cooperation and personal reminder letters to women within the target population (Public Health Research, Education, and Development Program, 2000). In addition, with the decreasing availability of primary care physicians in many areas of the province, other models of care will need to be developed to provide women with better access to screening, as well as referral to specialists for follow-up of abnormal Pap tests.

COLORECTAL SCREENING IN ONTARIO

The new recommendations of the Canadian Task Force on Preventive Health Care supporting colorectal screening with fecal occult blood testing were published in the summer of 2001. It is unlikely that they have had much impact on screening participation rates in Ontario since then. However, this situation presents a window of opportunity to establish a systematic approach to colorectal screening in Ontario and ensure that promotion of screening participation is supported by the availability of an organized program to men and women in Ontario.

Cancer Care Ontario convened an expert panel in 1998 to review the recent scientific evidence and make recommendations about the establishment of a colorectal screening program for Ontario. The final report of the panel recommended that Ontario should establish a colorectal screening program (Cancer Care Ontario, 1999b); however a subsequent proposal submitted by Cancer Care Ontario to the Ministry of Health and Long-Term Care to implement this recommendation was not approved. Instead, at the request of the Ministry, a pilot project proposal was developed and submitted in 2000. Over the past year negotiations have been ongoing between Cancer Care Ontario and the Ministry, to revise and refine the pilot project proposal before it is considered for funding by the Ministry.

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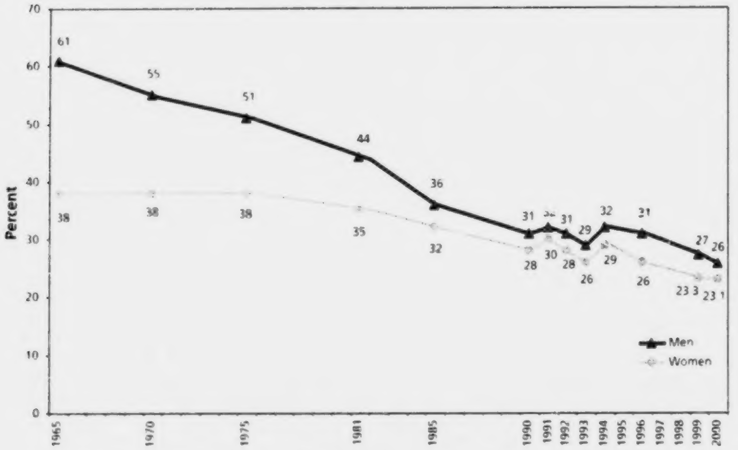
CHAPTER 20 – SMOKING

KIM BERCOVITZ, ROBERTA FERRENCE, AND BRONWEN WALLER

OVERVIEW

Exhibit 20-1. Prevalence of Current Cigarette Smoking by Sex, Age 15 and Over, Canada, 1965–2000.



Data source: Health Promotion Survey 1990 Technical Report, Stephens and Fowler (Eds) 1993; Survey of Smoking in Canada Cycle 1, 1994; National Population Health Survey, 1996/97; Canadian Tobacco Use Monitoring Survey 1999, 2000

Gender differences in cigarette smoking among adults were substantial in the early part of the twentieth century. In 1965, when Canadian surveys of smoking first began, 61 percent of men and 38 percent of women reported smoking (Exhibit 20-1). Men's smoking began to decrease in the late 1950s, about two decades before women's smoking began to decline. By the 1980s gender differences in the prevalence of smoking were greatly reduced. Nonetheless, men are still more likely to smoke than women (26% vs. 23%) and, among daily smokers, to smoke more heavily (19.0 vs. 14.4 cigarettes per day) (Health Canada, 2000).

GENDER-SPECIFIC TRENDS

These overall trends are useful in understanding changes in the prevalence of smoking in Canada as a whole; however, they mask important differences in smoking behaviours by gender and age. The decline in the overall prevalence of smoking between 1965 and 1990 was primarily due to the large reduction in smoking among *men* (Bondy, Cohen, & Rehm, 2000; Ferrence, Lothian, & Cape, 2000). The pattern of change was different for women, possibly as a result of the convergence of two trends. At the same time that some women were taking up smoking, the earliest "adopters" may have been quitting along with their male counterparts (Ferrence, 1988). The net decline in smoking prevalence among Canadian women from 1965 to 1979 was only one percentage point, but women's smoking actually increased until 1975 and subsequently decreased, until 1989 when it stabilized at about 28 percent (Bondy, Cohen, & Rehm, 2000).

Where gender differences are found, they are driven by earlier birth cohorts among which men were much more likely ever to have smoked (Bondy, Cohen, & Rehm, 2000). While the prevalence of smoking among Canadian adults stabilized during the early 1990s, prevalence rates among Canadian youth increased during this time period. Among teenagers aged 15 to 17 in 2000, more teen girls than boys smoked (25 percent vs. 19 percent), but rates were higher among males in all higher age groups. Smoking rates among women of childbearing age (i.e., 20–44 years) were high (31 percent) in comparison to those of women in other age groups (Health Canada, 2000).

BACKGROUND

HEALTH CONSEQUENCES OF SMOKING AND ENVIRONMENTAL TOBACCO SMOKE

Smoking is the leading preventable cause of premature death and disability among women in Canada. Lung cancer, ischemic heart disease, chronic obstructive lung disease, and stroke are responsible for two-thirds or more of smoking-attributable deaths in women. Lung cancer now exceeds breast cancer as the leading cause of cancer death in women, and incidence and mortality rates continue to rise as more women take up smoking (National Cancer Institute of Canada, 2001). Strong evidence is emerging that women are more susceptible than men to the carcinogenic effects of smoking on their lungs, that lung function is more adversely affected, and that smoking may be a stronger risk factor for myocardial infarction in women than in men (Pope, Ashley, & Ferrence, 1999).

Smoking among perinatal women is of particular concern in light of the adverse health effects of prenatal smoking on both the mother and the developing fetus. Prenatal smoking is associated with higher rates of vaginal bleeding, abnormalities of the placenta, spontaneous abortion, premature rupture of membranes, premature labour, preterm delivery, and low birth weight infants (US Department of Health and Human Services, 2001c). Postnatal exposure to environmental tobacco smoke increases the probability that a child will develop recurring respiratory irritations and illnesses, asthma, middle ear infections, and tonsillitis, or die of sudden infant death syndrome. Further, exposure to environmental tobacco smoke presents a negative role model for the developing child, given that parental smoking is a strong predictor of adolescent smoking (Farkas, Distefan, Choi, Gilpin, & Pierce, 1999; Flay, d'Avernas, Best, Kersall, & Ryan, 1983; Griesler, Kandel, & Davies, 1998; Griffin, Botvin, Doyle, Diaz, & Epstein, 1999).

Smoking is associated with earlier menopause. Smoking among post-menopausal women is also of concern since the effects of long-term smoking begin to manifest at later ages in higher rates of heart disease, stroke, and cancer. Since bone density tends to decline after menopause and smoking affects bone density adversely, post-menopausal women who smoke have increased susceptibility to hip fractures and osteoporosis (US Department of Health and Human Services, 2001a).

HEALTH BURDEN OF SMOKING

In Canada at least 10,500 deaths each year are attributable to smoking (Single, Robson, & Rehm, 1999). An estimated 176,679 years of life among Canadian women were lost prematurely in 1992 because of smoking (Single, Robson, & Rehm, 1999).[1] Estimates concerning reduction in life expectancy at age 35 are 5.3 years for Canadian women who are current smokers and 3.7 years for women who smoked formerly (Basavaraj, 2001). Lung cancer is the leading contributor to life loss due to smoking, accounting for almost 40 percent of this health impact. Almost 1.2 million hospital days and more than 77,000 hospital separations (discharges) and deaths in Canada are attributable to smoking in women (Single, Robson, & Rehm, 1999). Ischemic heart disease and stroke are the main contributors to smoking-related hospital separations, while chronic obstructive lung disease and stroke are the leading contributors to the number of days spent in hospital. Single, Robson, and Rehm (1999) estimated that in 1992, tobacco accounted for more than $9.5 billion dollars in costs to Canadians or $340 per capita. Indirect costs (i.e., lost productivity due to morbidity and premature mortality) accounted for $6.82 billion of these costs, and direct health care costs accounted for $2.68 billion.

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[1] Single, Robson, and Rehm's study (1999) uses attributable risk fractions based on a meta-analysis of studies of smoking and disease outcomes.

For Ontario, preliminary estimates of the 1997 morbidity and mortality data for Ontario women (Single & Luk, 2001) are as follows:

- Deaths attributable to tobacco use: 4,164
- Potential years of life lost due to tobacco use: 65,676
- Hospital separations attributable to tobacco use: 24,421
- Hospital days attributable to tobacco use: 201,766

Lung cancer (34 percent), chronic obstructive pulmonary disease (COPD) (20 percent) and ischemic heart disease (16 percent) are the top three leading causes of female death due to smoking, accounting for a total of 70 percent of smoking-caused deaths among Ontario women. The leading causes of smoking-attributable female hospital separations are ischemic heart disease (22 percent), COPD (20 percent), lung cancer (nine percent), and stroke (seven percent), accounting for a total of 58 percent of smoking-caused separations among Ontario women.

FACTORS INFLUENCING SMOKING AND QUITTING

There is considerable inconsistency in research findings on gender-specific differences in smoking initiation and cessation. Some of these inconsistencies stem from differences in the study populations examined as well as from differences in study design and quality (US Department of Health and Human Services, 2001b). Most psychosocial risk factors for smoking initiation appear to be similar. Girls and boys are likely to be influenced by similar risk factors (e.g., strength of attachment to family and friends, peer and family smoking, commitment to school). Among girls, those who are more sociable appear to be at higher risk for starting to smoke than are less socially confident girls. Girls appear to be influenced by a positive image of smoking, desire to control weight, and negative moods. Girls may also be more influenced than boys to smoke out of rebelliousness or rejection of conventional norms.

In addition to psychosocial influences, social and environmental factors affect the likelihood of smoking initiation among women. Examples of social and environmental factors include marketing techniques (e.g., light and mild labelling), promotions and event sponsorships (e.g., fashion shows, women's tennis, arts and cultural events) and product packaging (e.g., brand names such as Virginia Slims, Misty, and Style). Overall, tobacco marketing targeted at women emphasizes themes such as slimness, style, women's equality and emancipation, independence, athleticism, romance, and sexual attractiveness (US Department of Health and Human Services, 2001b). Price is also a major factor influencing smoking, particularly among youth. While both male and female youth are price-sensitive smoking may be more affordable for males if they have a higher disposable income.

Women who continue to smoke and those who are unable to quit smoking tend to be disadvantaged, with higher rates of poverty, unemployment, low occupational status, low level of education, lone-parent status, geographic isolation, and lack of social support (Stewart et al., 1996). In interviews with 386 disadvantaged women across Canada, Stewart and colleagues (1996) found that smoking was linked with their life situation of poverty, isolation, and caregiving. Women reported that they used smoking as a mechanism for coping with the stress in their lives.

Bio-psychosocial factors, such as pregnancy, fear of weight gain, dependency on cigarettes, depression, need for social support, and low cognitive readiness to quit, are associated with smoking maintenance, cessation, and relapse (US Department of Health and Human Services, 2001b). Women who relapse are more likely than those who remain abstinent to have shorter periods of smoking cessation and a lower sense of self-efficacy concerning the likelihood of success in quitting smoking. Relapse rates are especially high among postpartum women: 63–90 percent of women who quit smoking during pregnancy relapse within the first six months postpartum (McBride & Pirie, 1990; Mullen, Richardson, Quinn, & Ershoff, 1997; Sexton, Hebel, & Fox, 1987; US Department of Health and Human Services, 2001a). Risk factors include having a partner or a friend who smokes, a lack of confidence at mid-pregnancy regarding continued abstinence, and concerns about weight (US Department of Health and Human Services, 2001a).

METHODS

A number of general population surveys were used to obtain prevalence data as well as data on dependence and quitting smoking. Data sources include the Canadian Tobacco Use Monitoring Survey (CTUMS) 2000 (Health Canada, 2000), the National Population Health Survey (NPHS), 1996/97 (Health Canada, 2001), and the Centre for Addiction and Mental Health (CAMH) Monitor, 2000 (Centre for Addiction and Mental Health, 2001).

DESCRIPTION OF DATA SOURCES

Health Canada's CTUMS is a national telephone survey that has tracked changes in smoking status and amount smoked since 1999. Youth aged 15 to 24 years old are overrepresented. This is also an important data source for youth tobacco use because it covers non-student youth, a hard-to-reach population. Data available at the time of this report were collected in three waves (February–June, 1999 and July–December, 1999, with approximately 22,000 respondents; February–June, 2000, with approximately 10,500 respondents).

The CAMH Monitor is an ongoing survey of Ontario adults, designed to monitor indicators of alcohol, tobacco, and other drug use, as well as mental health and public opinion on drug use and policies. The Monitor and previous surveys with similar methodology (Ontario Alcohol and Other Drug Use Survey, Ontario Opinion Survey) allow comparisons of smoking behaviour since 1991. Data are gathered through random-digit dialing using CATI (Computer-Assisted Telephone Interviewing) techniques. One adult (18 years or over) from each sampled household is surveyed using the nearest birthday method, and the data are collected through independent monthly surveys (Adlaf, Ialomiteanu, & Paglia, 2000).

The National Population Health Survey (NPHS) is a cross-sectional and longitudinal (follow-up) household-based survey conducted every two years by Statistics Canada. It is designed to collect information about health status and health determinants, including health behaviours such as smoking, use of health services, and socio-demographic information. The target population consists of household residents in all provinces and territories except persons living on Indian reserves, on Canadian Forces bases, and in some remote areas of Ontario and Quebec. The NPHS Highlights on smoking behaviour are restricted to the non-institutionalized population aged 15 years and over.

INTERPRETIVE CAUTIONS

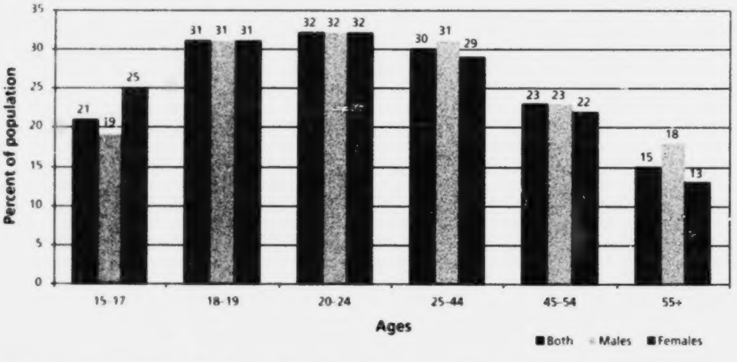
- Household telephone surveys are limited in that they: do not include members of households that do not have telephones; may underrepresent men who may not typically be at home; and may be susceptible to underreporting smoking behaviour in the presence of other household members.
- Different measures (e.g., smoking status, dependency index) and response categories (e.g., income categories) make comparative analyses difficult. The Glossary of Terms below defines some of the measures we used for the data analysis and writing of this chapter.
- With the exception of the longitudinal component of the NPHS, the cross-sectional surveys (CTUMS, CAMH Monitor, NPHS) do not allow for tracking smokers to determine changes in their smoking behaviour and status over time.
- Some of the results need to be interpreted with caution given the small sample sizes for certain subpopulations (e.g., higher income and education groups, non-daily smokers, former smokers) and small cell counts.

FINDINGS AND DISCUSSION

SMOKING PREVALENCE IN CANADA

In 2000, 24.5 percent of Canadians 15 years and older (approximately six million people) were current smokers (Health Canada, 2000). Current smokers consisted of 19.8 percent who smoked daily and 4.7 percent who smoked occasionally. Smoking has decreased among all age groups since 1981 and is at the lowest overall level since regular monitoring of smoking began in 1965 (Exhibit 20-1). Since 1990 the most pronounced reduction in smoking has occurred among those 25 years and older. Smoking among teens aged 15–19 decreased dramatically from 43 percent in 1981 to 21 percent in 1990. However, after 1990 smoking rates increased in this age group (due, in part, to increased availability of cheap cigarettes from smuggling and a substantial tax reduction), plateaued at about 28 percent in 1994, and subsequently declined to 25 percent in 2000. Among young adults aged 20 to 24 prevalence rates declined slightly from 35 percent in 1999 to 32 percent in 2000. This change is mainly due to declining smoking rates among men in this age group (from 40 percent in 1999 to 33 percent in 2000). Smoking rates for women in this age group were unchanged (32 percent).

Exhibit 20-2. Current Smoking Prevalence Rates

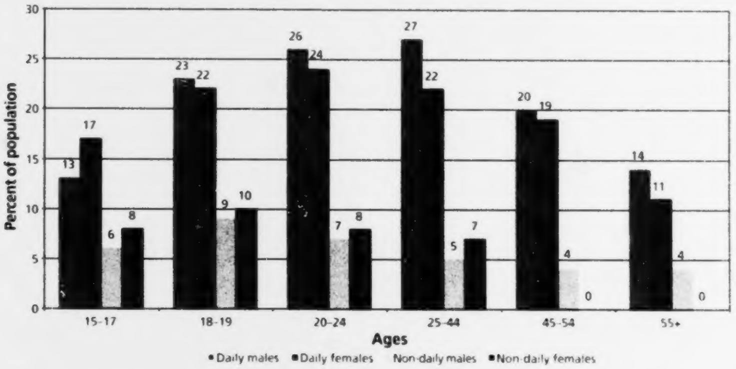


Data source: Health Canada, 2000 (Canadian Tobacco Use Monitoring Survey 2000).

WHO SMOKES?

In 2000 a higher percentage of men than women smoked at the time of the study, (26 % vs. 23 %). This finding was consistent in all age groups, except in youth aged 15 to 19 (Exhibit 20-2), among whom a higher proportion of girls than boys were current smokers (27 % vs. 23%). In particular, within the 15 to 17 year age group, more teen girls than teen boys smoked (25% vs. 19%). Smoking rates were comparable in both the 18 to 19 and the 20 to 24 age groups (males 31% vs. females 32 %) (Health Canada, 2000).

Exhibit 20-3. Daily and Non-daily Smoking Prevalence Rates



Data source: Health Canada, 2000 (Canadian Tobacco Use Monitoring Survey 2000).

Smoking behaviour increased during adolescence and peaked during young adulthood. The rise in prevalence was due primarily to the increased proportion of daily smokers (Exhibit 20-3). Adults aged 20–24 had the highest smoking rate (32%), including the highest overall percentage of daily smokers (25%). Within this age group, 26 percent of men and 24 percent of women were daily smokers. The prevalence of daily smoking declined among women aged 25 to 44 and was lower than it was among men in this age group (22% vs. 27%). The lowest rates were in the 55-plus age group in which 12 percent smoked daily (14% of men and 11% of women).

HOW MUCH DO PEOPLE SMOKE?

Canadian adults who smoked daily reported consuming an average of 16.9 cigarettes per day. Men reported smoking more cigarettes per day than women (19.0 vs. 14.4 cigarettes per day). Among women who smoked daily, the number of cigarettes smoked was lowest in the 20 to 24 and 65-plus age groups (12.3 and 13.7 cigarettes per day, respectively), and highest in the 25–44 and 45–64 age groups (14.7 and 15.9 cigarettes per day, respectively). Among men who smoked daily, the number of cigarettes smoked increased with successive age groups after age 20 (Health Canada, 2000).

HOW DEPENDENT ARE ONTARIO SMOKERS?

Smoking dependence was measured using the Heaviness of Smoking Index (HSI) (see the glossary below). This scale is based on the time to first cigarette (i.e., time elapsed from waking up in the morning until a smoker lights up) and the number of cigarettes smoked in a day. Using the HSI, 21 percent of daily smokers are highly dependent, 37 percent are moderately dependent, and 43 percent show low dependence (Centre for Addiction and Mental Health, 2001). There were more men than women in the high dependence category (21 percent vs. 15 percent). The largest percentage of smokers in the high dependence category were aged 45 to 64 (26 percent overall; 31 percent men vs. 18 percent women) and the largest percentage of smokers in the low dependence category were aged 18 to 19 (58 percent overall; 46 percent men vs. 79 percent women) (Centre for Addiction and Mental Health, 2001).

WHO HAS QUIT SMOKING AND WHO IS TRYING TO QUIT?

Overall, 26 percent of Canadians are former smokers (29 percent of men and 23 percent of women) (Health Canada, 2000)[2]. Seventy-four percent of former smokers quit smoking more than five years ago. Overall, 23 percent of Canadians have quit smoking in the last five years (25 percent of women and 22 percent of men).

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[2] The data are similar for former smokers in Ontario (28% of Ontarians are former smokers, 30% of males and 25% of women) (Health Canada, 2000).

Concern about future health was cited as the top reason for quitting smoking (cited by 49 percent of men and 45 percent of women). Additional reasons cited by those who had quit included cost, pressure from family and friends, and pregnancy (for female smokers). The main reasons cited for cutting down were that reducing smoking represented a preparatory phase for quitting, and health concerns. Pregnancy also emerged as a main reason among women for cutting down (Health Canada, 2001).

Exhibit 20-4. Stages of Change by Sex in 15–24 Age Group (Canada, Current Smokers Only)

	%	
Stage of Change	**Male**	**Female**
Precontemplation	36	43
Contemplation	41	38
Preparation	23	19

Data source: Health Canada, 2000 (Canadian Tobacco Use Monitoring Survey 2000)

Exhibit 20-5. Stages of Change by Sex in 25 and Over Age Group (Canada, Current Smokers Only)

	%	
Stage of Change	**Male**	**Female**
Precontemplation	51	48
Contemplation	33	39
Preparation	16	13

Data source: Health Canada, 2000 (Canadian Tobacco Use Monitoring Survey 2000)

Stage of change is a measure that divides smokers into three different categories, depending on their readiness to quit smoking (see the glossary below). Among Canadians in the 15 to 24 year age group, slightly more men than women report being in the contemplation (41% vs. 38%) and preparation (23% vs. 19%) stages. More women than men in this age group report that they were in the precontemplation stage (43% vs. 36%). Among Canadians aged 25 years and older, more women than men report being in the contemplation stage (39% vs. 33%). More men than women report being in the precontemplation (51% vs. 48%) and preparation (16% vs. 13%) stages. (Health Canada, 2000).

Interest in quitting is highest at younger ages. For example, 33 percent of men aged 15 to 24 were contemplating quitting compared to 14 percent of men 25 years and older. Among women aged 15 to 24, 29 percent were thinking about quitting compared to 18 percent of women aged 25 years and older. Attempts to quit were also strongly related to age. More than half (57 percent) of teens aged 15 to 17 reported having made one to three attempts to quit smoking compared to one third (33 percent) of adults 35 years and older. These figures probably reflect a higher dependence on cigarettes among older smokers, given that most of those with lower levels of dependence would have successfully stopped smoking earlier. The relatively high level of smoking found among women aged 20 to 24 suggests that teens also have high rates of relapse. With the exception of the 20 to 24 age category, there were no gender differences in number of attempts to quit. In this age group, slightly more women than men made quit attempts (50 percent vs. 45 percent). This is not surprising given that women in their childbearing years often attempt to stop smoking prior to or during their pregnancies (Health Canada, 2000).

- One of the advantages of having access to longitudinal data is that individual patterns of smoking over time can be examined. According to NPHS longitudinal data, in 1994/1995 over 5.8 million Canadians 15 years and older smoked every day, and just over 1.1 million Canadians smoked occasionally. Two years later, in 1996/97, approximately ten percent (556,000) of daily smokers had quit, and about three percent (179,000) had cut back to smoking only occasionally. Approximately 35 percent (412,000) of occasional smokers had quit smoking (Health Canada, 2001).

Slightly more women than men quit smoking during that period: 11 percent of women who were daily smokers in 1994/95 quit by 1996/97, and four percent cut

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Slightly more women than men quit smoking during that period: 11 percent of women who were daily smokers in 1994/95 quit by 1996/97, and four percent cut back to occasional smoking; nine percent of men quit by 1996/97 and three percent reduced their smoking to occasional smoking. Among occasional smokers in 1994/95, 40 percent of women and 32 percent of men had quit by 1996/97. Unfortunately, this quit rate among occasional smokers was balanced by the 32 percent of occasional-smoking women and 35 percent of occasional-smoking men who had become daily smokers between 1994/95 and 1996/97.

Older quitters were less likely than younger quitters to have relapsed (i.e., resumed smoking) between 1994/95 and 1996/97. Only five percent of former smokers 34 years and older relapsed between 1994/95 and 1996/97, compared to 34 percent of former smokers under the age of 25. Younger former daily smokers were more likely to relapse than younger former occasional smokers (43 percent vs. 32 percent, for those under 25 years). There were no gender differences in the percentage of former daily smokers and former occasional smokers who relapsed within each age group.

OTHER COMPARISONS

Provincial differences

Overall smoking prevalence rates among Canadians 15 years and older ranged from a low of 20 percent in British Columbia to 28 percent in Newfoundland, Saskatchewan, and Quebec, and 30 percent in Nova Scotia (Health Canada, 2000). Smoking declined in most provinces between 1999 and 2000, with the greatest improvements noted in Alberta, Newfoundland, and Quebec. For the first time in a decade, Quebec did not rank first in overall smoking prevalence. There were large differences in average amounts reported smoked by daily smokers, ranging from a low of 14.8 cigarettes per day in British Columbia to 19 cigarettes per day in New Brunswick.

There were marked differences across provinces in smoking among youth aged 15 to 19. New Brunswick and Quebec had the highest rates (30 percent) while British Columbia had the lowest (18 percent). The most pronounced declines in teen smoking were found in Quebec (dropping from 36 percent in 1999 to 30 percent in 2000), Saskatchewan (dropping from 31 percent in 1999 to 24 percent in 2000) and Prince Edward Island (dropping from 28 percent in 1999 to 21 percent in 2000).

Analysis of smoking rates by gender showed higher rates for men aged 15 years and older than women in each of the provinces except New Brunswick and Quebec where the prevalence of smoking was similar between both sexes. Ontario women had one of the lowest rates of smoking in the country (21 percent) whereas Ontario men were about average (25 percent). Gender differences were most pronounced in Prince Edward Island (30 percent of men vs. 22 percent women) and Manitoba (29 percent of men vs. 23 percent of women).

Regional differences

Smoking prevalence: Smoking rates varied considerably by region. Rates were highest in Northern Ontario (32%) and Central South Ontario (31%) and lowest in Toronto (21%) and Central West Ontario (22%) (Exhibit 20-6). Among men, smoking rates were highest in Central South (40%) and lowest in Central West (24%) and Toronto (25%). Among women, smoking rates were highest in Northern Ontario (29%) and lowest in Central East (17%) and Toronto (18%) (Centre for Addiction and Mental Health, 2001).

Exhibit 20-6. Regional Differences in Smoking Status

	Health Planning Region						
Smoking Status	Southwest	Central South	Central West	Toronto	Central East	Eastern	Northern
Current	28	31	22	21	24	28	32
Former	25	27	19	23	29	28	31
Never	47	42	60	55	47	44	36
Total	100	100	100	100	100	100	100

Data source: Centre for Addiction and Mental Health (CAMH) Monitor, 2000

Smoking dependence: The proportion of daily smokers with moderate or high dependence was highest in Southwestern Ontario (64 percent) and lowest in the Central South region and Toronto (41 percent) (Centre for Addiction and Mental Health, 2001). There were important differences across regions in the proportion of daily smokers who were highly dependent, ranging from 11 percent in Central East Ontario to 19 percent in the North (Centre for Addiction and Mental Health, 2001).

International differences

In developing countries, only one in eight women is a regular smoker. Globally, an estimated 12 percent of women smoke. Overall, smoking prevalence among women is 24 percent in developed[1] countries and seven percent in developing countries (World Health Organization, 1997). In particular, the prevalence of cigarette smoking among women aged 15 years and older in 1995 was estimated at one percent in South Asia, four percent in East Asia and the Pacific, five percent in the Middle East and North Africa, ten percent in Sub-Saharan Africa, 21 percent in the Caribbean and Latin America, and 26 percent in Central Asia and Eastern Europe (US Department of Health and Human Services, 2001d).

Several cautions need to be acknowledged: First, the data are specific to cigarette smoking and not other forms of tobacco use such as bidis (a traditional hand-rolled tobacco product smoked in south Asia), pipes, and smokeless or chewing tobacco. In certain areas in India, for example, more than half (57 percent) of women use smokeless tobacco, similar to rates for men (56 percent) (Gupta, 1996). Second, the prevalence of smoking among women varies substantially across countries. For example, within Europe, prevalence rates are high in Denmark (37 percent), Norway (36 percent), and the Czech Republic (31 percent), but relatively low in Portugal (15 percent). Relative to industrialized countries where smoking prevalence is generally high, prevalence rates are low among women in Japan (15 percent) and Singapore (three percent).

An important third caution is that overall estimates of smoking prevalence conceal important differences within subgroups. For example, in New Zealand, over half of Maori women and two-thirds of pregnant Maori women smoked in 1991 (New Zealand Public Health Commission, 1994). In 1991, 57 percent of Canadian First Nations women smoked (Health Canada, 1994). In South Africa, 59 percent of "coloured" women smoked. Fourth, overall estimates of smoking conceal important differences by age group. For example, 48 percent of Spanish women aged 25 to 34 smoked compared to four percent of women aged 55 to 64 (Molarius et al., 2001). The prevalence of smoking was much higher among younger women

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[1] Developed countries include all of Europe (including the newly independent states of the former USSR), North America, Australia, New Zealand, and Japan. All other regions are classified as developing.

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Total	100	100	100	100	100	100	100

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International differences

In developing countries, only one in eight women is a regular smoker. Globally, an estimated 12 percent of women smoke. Overall, smoking prevalence among women is 24 percent in developed[3] countries and seven percent in developing countries (World Health Organization, 1997). In particular, the prevalence of cigarette smoking among women aged 15 years and older in 1995 was estimated at one percent in South Asia, four percent in East Asia and the Pacific, five percent in the Middle East and North Africa, ten percent in Sub-Saharan Africa, 21 percent in the Caribbean and Latin America, and 26 percent in Central Asia and Eastern Europe (US Department of Health and Human Services, 2001d).

Several cautions need to be acknowledged: First, the data are specific to cigarette smoking and not other forms of tobacco use such as bidis (a traditional hand-rolled tobacco product smoked in south Asia), pipes, and smokeless or chewing tobacco. In certain areas in India, for example, more than half (57 percent) of women use smokeless tobacco, similar to rates for men (56 percent) (Gupta, 1996). Second, the prevalence of smoking among women varies substantially across countries. For example, within Europe, prevalence rates are high in Denmark (37 percent), Norway (36 percent), and the Czech Republic (31 percent), but relatively low in Portugal (15 percent). Relative to industrialized countries where smoking prevalence is generally high, prevalence rates are low among women in Japan (15 percent) and Singapore (three percent).

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[3] Developed countries include all of Europe (including the newly independent states of the former USSR), North America, Australia, New Zealand, and Japan. All other regions are classified as developing.

SUBPOPULATIONS

Socioeconomic status (SES)

Separate cross tabulations were conducted using education, income, and occupation as proxies for socioeconomic status (Centre for Addiction and Mental Health, 2001). There were associations between education, occupation, and smoking status among Ontarians 15 years and older:

- Thirty-one percent of those with less than a high school education were current smokers compared to 16 percent of those with a university degree. These results are comparable to national data (Health Canada, 2000); however, one must use caution in interpreting these results given that there are small numbers of highly educated people.
- Smoking prevalence among blue-collar workers (those with unskilled or semi-skilled clerical/sales, trades, or farming occupations) was higher than in the general population (28 percent of blue-collar workers are current smokers vs. 21 percent in other occupations).

Household income is related to smoking status. At the national level, 32 percent of Canadians with a yearly household income below $29,000 are current smokers, while only 18 percent of those with a yearly household income above $80,000 are current smokers. At the provincial level, 32 percent of Ontarians with a yearly household income below $29,000 are current smokers, while only 17 percent of those with a yearly household income above $80,000 are current smokers. Of those with a household income of $30,000–$79,000, 27 percent of Canadians and 28 percent of Ontarians were current smokers (Health Canada, 2000).

Urban vs. rural

Smoking rates were comparable among urban (25 percent) and rural (27 percent) populations, and gender differences were similar in both groups. A higher proportion of men were current smokers than women (30 percent vs. 21 percent in urban populations; 35 percent vs. 21 percent in rural populations) (Centre for Addiction and Mental Health, 2001). The percentage of former smokers was similar in urban and rural populations (25 percent and 28 percent, respectively). A higher proportion of men than women were former smokers (27 percent vs. 23 percent in urban populations; 32 percent vs. 26 percent in rural populations).

English vs. French

Francophones were more likely to be current smokers than anglophones (28 percent vs. 24 percent) (Health Canada, 2000). However, sex differences were similar in both groups. Rates of current smoking among francophone males and females were 29 percent and 28 percent, respectively, and among anglophone males and females were 25 percent and 23 percent, respectively.

People with disabilities (Health Canada, 2001)

People with disabilities were more likely to smoke, but the same gender differences found in the general population were found in this special population.[4]

- Of females who reported restricted activity, 27 percent were smokers compared to 21 percent of women with no restricted activity.
- Of males who reported restricted activity, 31 percent were smokers compared to 25 percent of males with no restricted activity.

Adolescent girls

Within the 15 to 17 age group, a higher proportion of adolescent girls were current smokers than adolescent boys (25 percent vs. 19 percent), but by ages 18 to 19, the gender difference disappears[5] (Health Canada, 2000). Concerns about body weight and weight gain, perceptions of being overweight, and the desire to lose weight played a role in the initiation and maintenance of smoking. The smoking behaviour of friends was significantly related to concerns about weight gain, more so for women than for men (Plotnikoff et al., 2001). Bercovitz and colleagues (2000) found that 24 percent of women who were terrified about gaining weight and 23 percent of women who were very concerned about weight gain were daily smokers. Another study found that adolescent girls who believed themselves to be overweight had more than 50 percent greater odds of being smokers compared to those who believed themselves to be of average weight or too thin ($OR=1.58$, $p<0.01$) (Winter, de Guia, Ferrence, & Cohen, in press). Teenage girls were more likely than their male counterparts to view smoking as a weight control strategy.

Pregnant women

Smoking during pregnancy continues to be a major public health problem despite increased knowledge of the adverse effects of smoking during pregnancy. Data from Cycle 3 of the Survey on Smoking in Canada (Health Canada, 1995) indicate that among women aged 20 to 44 who reported having been pregnant in the previous five years, 19 percent reported having smoked "regularly" during their most recent pregnancy. Among current female smokers, 58 percent report having smoked during their most recent pregnancy. Only about one-third of women who stop smoking during pregnancy are still abstinent one year after they give birth (US Department of Health and Human Services, 2001d).

Lesbian women

Smoking rates are higher among adolescent and adult lesbians, gays, and bisexuals than in the general US population. No data are available for Canada, but similar findings are likely. Estimated smoking prevalence for young lesbians, gays, and bisexuals in the US ranged from 38 percent among those with same-sex sexual experiences to 59 percent among self-identified lesbians, gays, and bisexuals and from 11 percent to 50 percent among adult lesbians, gays, and bisexuals. The prevalence of smoking ranged from 25 percent to 50 percent in gay and bisexual men, and from 11 percent to 50 percent in lesbian and bisexual women. National smoking rates during comparable time periods ranged from 28 percent to 35 percent for youth and approximately 28 percent for adults (Ryan, Wortley, Easton, Pederson, & Greenwood, 2001).

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[4] Because these data are cross-sectional, we do not know the extent to which the higher rates of smoking among the disabled played a causal role in their disability and to what extent they resulted from their own response to their disability.

[5] The early difference may be related to girls maturing earlier or having older boyfriends.

Postmenopausal and senior women

Overall, only a small percentage of Canadian women 55 years and older smoke cigarettes (11 percent) (Health Canada, 2000). Older women who smoke are less likely than older men who smoke to be married, to have at least a high school education, or to belong to a community organization; and are more likely to be widowed, to live alone, to be unemployed, and to report an annual household income of less than $25,000 (US Department of Health and Human Services, 2001d). There have been no research studies on treatments tailored for older women.

GAPS

There is a dearth of detailed information on prevalence rates, determinants of smoking, and prevention and treatment programs among various subpopulations, including immigrant and visible minority women, Aboriginal women, lone mothers, women with disabilities, women with mental illness (e.g., schizophrenia), and lesbian women. Despite improvements in our understanding of the initiation and prevention of adolescent smoking, much less is known about smoking cessation in youths. Finally, a fuller understanding of the issues facing pregnant smokers is needed.

GLOSSARY OF TERMS

SMOKING STATUS TERMINOLOGY

Current smoker — was smoking at the time of the interview and includes daily and non-daily (occasional) smokers; OR does not smoke now but has smoked at least 100 cigarettes in their lifetime; AND last smoked less than one month ago.

Former smoker — was not smoking at the time of the interview, however answered "yes" to the question "Have you ever smoked at least 100 cigarettes in your life?" and last smoked more than one month ago.

Never-smoker — was not smoking at the time of the interview and answered "no" to the question "Have you ever smoked at least 100 cigarettes in your life?"

Non-smokers — former and never-smokers combined.

Prevalence of smoking — the proportion of cigarette smokers in the specified population.

SMOKING DEPENDENCY

High dependency:

1. More than 30 cigarettes/day, and within 30 minutes of waking
2. 21–30 cigarettes/day and within five minutes of waking

Moderate dependency:

1. More than 30 cigarettes/day, after more than 31 minutes of waking
2. 21–30 cigarettes/day, between six and 60 minutes of waking
3. Up to 20 cigarettes/day, within five minutes of waking
4. 11–20 cigarettes/day, between six and 30 minutes of waking

Low dependency:

1. One–ten cigarettes/day, after more than six minutes of waking
2. 11–20 cigarettes/day, after more than 31 minutes of waking
3. 21–30 cigarettes/day, after more than 60 minutes of waking

DEFINITIONS OF FIVE STAGES OF CHANGE

Precontemplation — current smokers who answer "no" to the question, "Are you seriously considering quitting within the next six months?"

Contemplation — current smokers who are *either* seriously considering quitting within the next six months, but answer "no" to the question, "Are you seriously considering quitting within the next 30 days?" OR are seriously considering quitting within the next 30 days, but did not try to quit for at least 24 hours during the past year (i.e., answered "none" to the question, "In the last year, how many times have you quit for at least 24 hours?").

Preparation — current smokers who are seriously considering quitting within the next 30 days and have quit smoking at least once, for at least 24 hours, during the past year.

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CHAPTER 21 – PHYSICAL ACTIVITY AND WEIGHT

JILL SLACK AND ENZA GUCCIARDI

OVERVIEW

Regular physical activity is beneficial to the physical and mental health of people of all ages. Evidence suggests that regular physical activity enhances health and reduces the risk for all-cause mortality and for the development of many chronic diseases among adults. Although activity levels reported among Canadians are increasing, a majority of Canadians are still classified as inactive or sedentary. Obesity continues to increase in Canada as a result of inactivity and poor eating habits. Consequently, many Canadians face the unnecessary risk of early death, disease, and acute and chronic health problems due to inactivity.

In 1998/99 Ontario women were more inactive than their male counterparts in every age group. Physical inactivity rates among adolescent girls rose slightly from previous years, and they continue to rise as women age. Between 1994 and 1999, physical inactivity rates among women aged 20–29 decreased substantially. Despite some improvements, however, the percentage of overweight females increased in all age groups between 1996 and 1999. Among women aged 50 to 69 the percentage of overweight individuals is higher than it is among women 20 to 49 years of age.

The lower activity levels seen among girls and women result from individual, social, and structural limitations and from barriers to participation, such as lack of time, money, childcare, social support, opportunity, and safety. Women's undervaluation and underestimation of their ability and skill, and the inaccessibility of programs and facilities are also impediments to physical activity. Further research is needed to determine the barriers and preferences that influence women's decisions to participate in physical activity throughout the life cycle and among specific subpopulations.

BACKGROUND

In addition to their beneficial effects, as observed in overall improvement in physical and mental health, regular physical activity and fitness have been shown to prevent or reduce the risk of several chronic conditions and diseases. Research shows that regular physical activity reduces the risk of developing heart disease, hypertension, non-insulin-dependent diabetes mellitus, osteoporosis, obesity, and colon cancer (Paffenbarger, Hyde, Wing, & Hsieh, 1986; Pate, Pratt, Blair, Haskell, & Macera, 1995). Research also indicates that regular physical activity can improve self-esteem; heighten self-confidence; enhance self-image, mood, and sleep; and reduce anxiety, depression, and mental stress (Fox, 1999; King, Taylor, Haskell, & DeBusk, 1989). Furthermore, physical activity improves one's quality of life, minimizes pain and improves function among those of limited activity, such as people with disabilities (Compton, Eisenman, & Henderson, 1989; Janssen, van Oers, van der Woudel, & Hollander, 1994; Resnick, 2001; Santiago, Coyle, & Kinney, 1993; Thomas, 1999). Other reported benefits, specifically for women, include the reduction or alleviation of premenstrual syndrome and painful menstruation, decreased risk of gestational diabetes, reduced pregnancy-related pelvic and back pain, and facilitation of labour and postnatal recovery (Marcus & Forsyth, 1998).

CONSEQUENCES OF PHYSICAL INACTIVITY: OBESITY

Certain people who carry some excess weight (BMI >25) may be susceptible to health problems. Individuals with a Body Mass Index (BMI) greater than 27, however, are at higher risk for several physical and psychological complications such as heart disease, Type 2 diabetes, high blood pressure, stroke, certain types of cancer, high lipids, gallbladder disease, sleep apnea, reduced fertility, osteoarthritis, emotional distress, discrimination, and social stigmatization (Birmingham, Muller, Palepu, Spinelli, & Anis, 1999; Lyznicki, Young, Riggs, & Davis, 2001). The economic burden of treating obesity-related comorbidities threatens our public health-care system. Recent estimates indicate that 14 to 17 million Canadian adults face unnecessary risk of early death, disease, chronic conditions, acute health problems, and mental health problems due to sedentary living (Russell & Craig, 2001). But over the past 15 years, the number of physically active Canadians has increased as a result of individual choice and government encouragement. An estimated $18 billion in health-care costs were potentially avoided because of this increase in participation in Canada.

METHODS

This chapter presents a review of the Canadian and American literature on physical activity, women, and health. To supplement secondary data, an analysis was conducted using primary data obtained from the National Population Health Survey (NPHS) (1994/95, 1996/97, 1998/99).

The Physical Activity Index was used as a measure of the level of physical inactivity by gender, by age, and by province for females across three waves of the NPHS (1994/95, 1996/97, 1998/99). To derive the level of physical activity of respondents aged 12 and over, the energy expenditure was estimated for each activity undertaken during leisure time. Energy expenditure was calculated by multiplying the number of times the respondent engaged in an activity over a 12-month period, by the averaged duration in hours, and by the energy cost of the activity (expressed in kilocalories expended per kilogram of body weight per hour of activity). Respondents with estimated energy expenditures lower than 1.5 kcal/kg/day are considered inactive.

BMI was used as an indicator of obesity by gender, by age, and by provinces for females across three waves of the NPHS (1994/95, 1996/97, 1998/99). The population consisted of women aged 20 to 64 excluding pregnant women and persons less than three feet (0.914 metres) tall or greater than six feet 11 inches (2.108 metres) in height. Four BMI categories — underweight (BMI <20), acceptable weight (BMI 20–25), some excess weight (BMI 25–27) and overweight (BMI >27) — were used for our analysis. Both the physical activity index and the BMI were obtained from the NPHS 1994/95, 1996/97, and 1998/99 data. All data were weighted to represent the population at the date of each survey. The data were cleaned by excluding all non-applicable and not-answered or refused responses from the denominator.

INTERPRETIVE CAUTIONS

There is a lack of standardization across the literature in methods of measuring physical activity and leisure time. Many resources exclude occupational physical activity and other sources of activity such as transportation modes and housework. This exclusion may underestimate the proportion of people who obtain the recommended level of physical activity, especially in certain populations, such as women and racial/ethnic minorities. Many women who are sedentary in their leisure time may actually be getting enough occupational activity to derive health benefits. Activities like walking and housework may be underreported because of the inability to quantify the lower level of intensity. In addition, much of the data is based on self-reported activity, which may somewhat overestimate the level of physical activity. Although the percentage of overweight females increased in every age group while physical inactivity decreased in certain groups, other factors such as muscle mass, diet, and genetics were not taken into account. Therefore, any inferences about the correlation between physical inactivity and obesity rates should be made with caution.

Many studies have observed that self-reported weight and height were very accurate indicators of actual weight and height (Nieto, Bysg, & Key, 1990; Stewart, 1982; Stewart, Jackson, Ford, & Beaglehole, 1987; Stunkard & Albaum, 1981, Troy et al., 1995). However, other studies show that calculated BMIs based on self reported weight and height might substantially misclassify individuals due to respondents' overestimation of height and underestimation of weight, resulting in an underestimation of obesity (Cairney & Wade, 1998; Hill & Roberts, 1998, Kuskowska, Nergstrom, & Bostrom, 1992; Stewart et al., 1987; Ziebland, Thorogood, Fuller, & Muir, 1996). Age, sex, social economic status, education level, and body size (thinner or heavier individuals) have also been related to either under or overestimated self-reporting of height and weight (Jalkanen, Tuomilehto, Tanskanen, & Puska, 1987; Nieto, Bysg, & Key, 1990; Palta, Prineas, Berman, & Hannan, 1982; Wing et al., 1979; Ziebland et al., 1996). Thus, results for BMI obtained from self-reported weight and height should be interpreted with some caution. Other methods such as recording waist-to-hip ratios and underwater weighing may be better indicators of obesity. However, as these measurements are not commonly used, analyses based on these data are not available.

FINDINGS AND DISCUSSION

PREVALENCE OF PHYSICAL INACTIVITY

Exhibit 21-1. Leisure-Time Physical Activity by Gender in Ontario, 1998/99

	Physically Active (%)	Moderately Active (%)	Physically Inactive (%)
Males	25.7	25.1	46.4
Females	18.8	22.6	56.4

Data source: National Population Health Survey, household component, 1998/99

Exhibit 21-1 represents information on leisure-time physical activity by sex in Ontario. A larger percentage of women than men reported themselves to be physically inactive and/or moderately inactive compared to men (56.4% vs. 46.4%). Similar findings were also identified nationally; based on the Canadian 1999 Physical Activity Health Monitor, 68 percent of women vs. 59 percent of men are not active enough to achieve the desired health benefits of physical activity (Canadian Fitness and Lifestyle Institute, 2001). Insufficient activity means expending fewer than three kilocalories per kilogram of body weight daily — roughly equivalent to walking an hour a day (Canadian Fitness and Lifestyle Institute, 2001). In Canada, sex-related differences are most apparent among young adults aged 18 to 24: 60 percent of women and 36 percent of men are insufficiently active in Canada (Canadian Fitness and Lifestyle Institute, 2001).

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Walking, gardening, home exercise, social dancing, swimming, and bicycling are the activities most frequently reported by Canadians regardless of gender (Russell & Craig, 2001). Women are more likely than men to participate in exercise classes, take part in yoga or tai chi programs, and walk to maintain fitness (Canadian Fitness and Lifestyle Institute, 2001). Physically active women also report engaging in home exercise, which includes workouts on stationary bikes, rowing machines, or stair climbers; using televized or videotaped programs; and gardening and other yard work as a way to stay fit (Statistics Canada, 1999b). In contrast, men are more likely than women to report participation in activities such as hockey, baseball, soccer, bicycling, weight training, basketball, football, jogging, gardening, tennis, skating, and alpine skiing (Canadian Fitness and Lifestyle Institute, 2001).

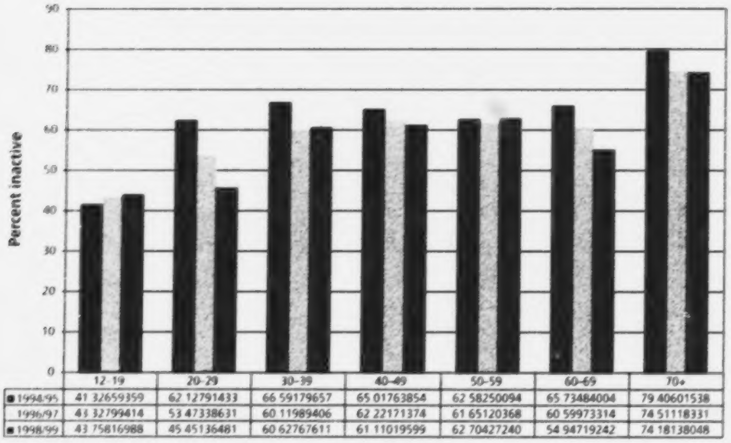
Research suggests that women tend to be less active than men in vigorous activities, particularly at young ages. However, gender differences disappear in regard to moderate and light intensity activities.(King et al., 1992; Marcus & Forsyth, 1998). Moreover, although men are more active in terms of overall energy expenditure, women tend to follow more regular patterns of physical activity (Canadian Fitness and Lifestyle Institute, 2001). Eyler and colleagues found that a much higher proportion of women were classified as active when occupational and household activity was evaluated (Eyler et al., 1999).

Exhibit 21-2 shows the percentage of inactive females in Ontario by age. As expected, physical inactivity rates increase as women age. These data also show that physical inactivity rates have declined in almost every age group except in the 12 to 19 age group.

GEOGRAPHICAL DIFFERENCES

Exhibit 21-3 presents data on physical inactivity rates of females by province. Physical inactivity rates in females are similar across provinces, British Columbia (47.6%) having the lowest inactivity rates and New Brunswick (64.8%) having the highest in Canada. Physical inactivity rates of females in Ontario (56.4%) are similar to the national average (55.6%).

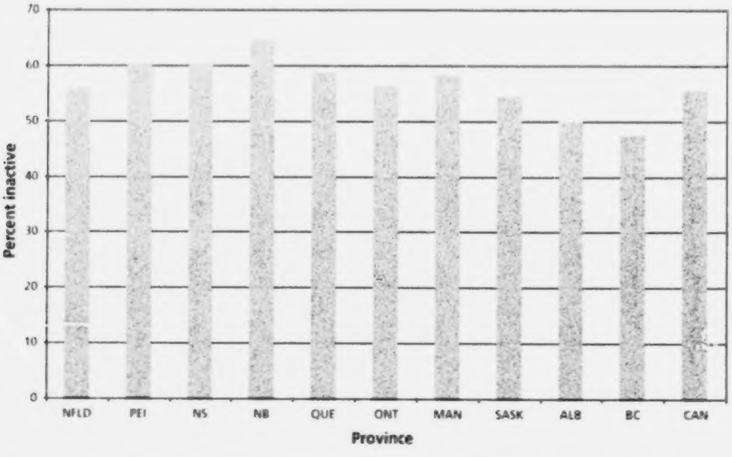
Exhibit 21-2. Percentage of Physically Inactive Females in Ontario by Age Group, 1994–99



	12-19	20-29	30-39	40-49	50-59	60-69	70+
■ 1994/95	41 32659359	62 12791433	66 59179657	65 01763854	62 58250094	65 73484004	79 40601538
1996/97	43 32799414	53 47338631	60 11989406	62 22171374	61 65120368	60 59973314	74 51118331
■ 1998/99	43 75816988	45 45136481	60 62767611	61 11019599	62 70427240	54 94719242	74 18138048

Data source: National Population Health Survey, household component, 1994/95, 1996/97, 1998/99.

Exhibit 21-3. Physical Inactivity Rates of Females by Province



Data source: National Population Health Survey, household component, 1998/99.

BODY MASS INDEX AS AN INDICATOR OF OBESITY

Exhibit 21-4 represents BMI categories by gender in Ontario. Despite the fact that men were more likely to be active, a higher percentage of men (37.9%) than women (25.8%) were overweight (BMI >27). Women were more likely to be in an acceptable weight range (BMI 20–25) and a higher percentage of women (11.3%) than men (4.2%) were underweight (BMI <20).

Exhibit 21-4. BMI Category by Gender in Ontario, 1998/99

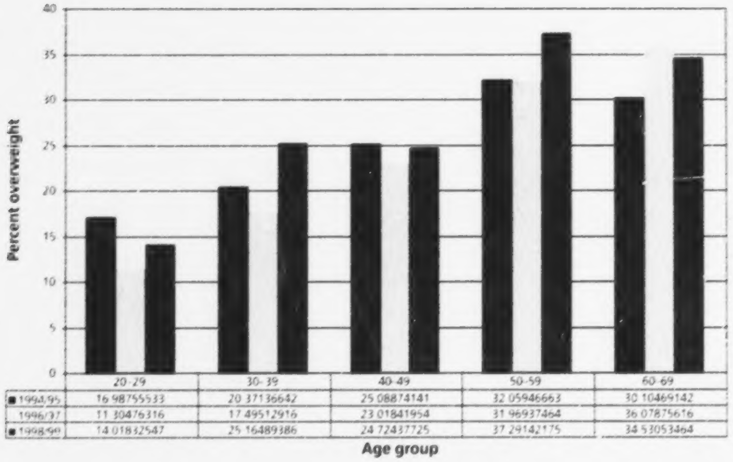
	BMI <20 % Under Weight	BMI 20–25 % Acceptable Weight	BMI 25–27 % Some Excess Weight	BMI >27 % Overweight
Males	4.2	32	25.8	37.9
Females	11.3	47.5	15.4	25.8

Data source: National Population Health Survey, household component, 1998/99

Exhibit 21-5 shows the percentage of overweight females by age groups in Ontario. As expected, BMI increases as women age. The percentage of overweight females has increased in every age group from 1996 to 1999. Women aged 50 to 69 have the highest percentage of overweight females compared to women aged 20 to 49. The percentage of overweight females is lowest in the 20 to 29 age group.

Exhibit 21-6 presents information on the percentage of women who are overweight by province. Newfoundland (39.2%) has the highest percentage of overweight women of all the provinces. Conversely, Quebec (22.1%) and British Columbia (21.7%) have lower percentages of overweight women than other provinces. The percentage of women who are overweight in Ontario (25.5%) is similar to the national average (25.7%).

Exhibit 21-5. Percentage of Overweight Females by Age Group in Ontario, 1994–99



	20-29	30-39	40-49	50-59	60-69
■ 1994/95	16 98755533	20 37136642	25 08874141	32 05946663	30 10469142
1996/97	11 30476316	17 49512916	23 01841954	31 96937464	36 07875616
■ 1998/99	14 01832547	25 16489386	24 72437725	37 29142175	34 53053464

Data source: National Population Health Survey, household component, 1998/99

Exhibit 21-6. Percentage of Overweight Females by Province, 1998/99

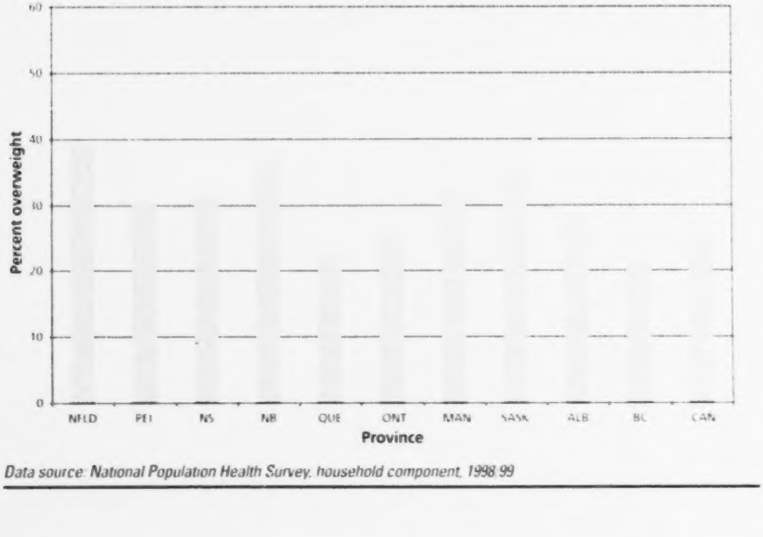


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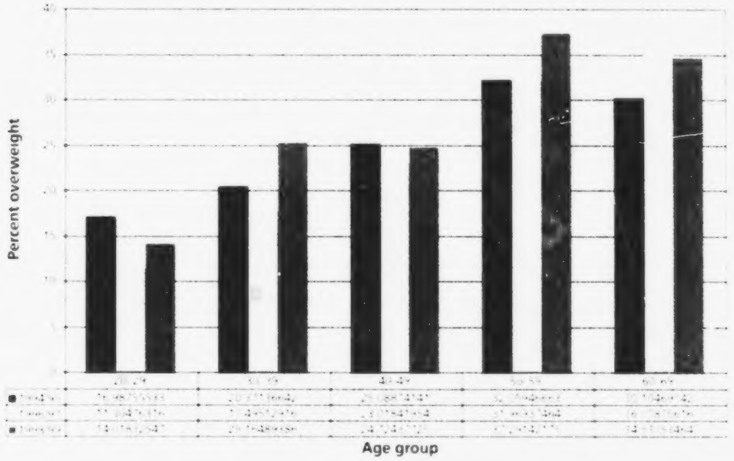
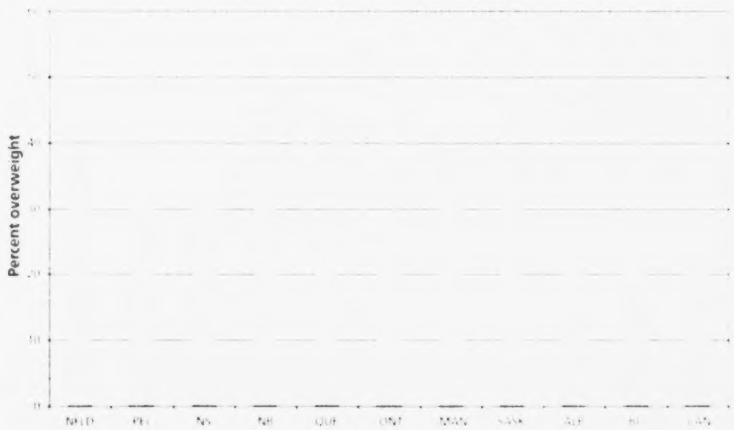
Exhibit 21-5. Percentage of Overweight Females by Age Group in Ontario, 1994–99



Data source: National Population Health Survey, household component, 1998/99

Exhibit 21-6. Percentage of Overweight Females by Province, 1998/99



Data source: National Population Health Survey, household component, 1998/99

INTENSITY AND DURATION OF PHYSICAL ACTIVITY

Ample evidence suggests that exercise need not necessarily be strenuous to be beneficial. However, the less vigorous the activity the longer it must be performed in order to confer the maximum energy expenditure and real health benefits. Moderately intense exercise such as walking is associated with a substantial reduction in the risk of total and ischemic stroke and coronary events among women (Hu et al., 1999; Hu et al., 2000), Type 2 diabetes (Tudor-Locke, Bell, & Meyers, 2000), and depression (Paluska & Schwenk, 2000). These findings are reassuring, since walking is a physical activity that is highly accessible, inexpensive, readily adopted, and rarely associated with exercise-related injury. Furthermore, moderately intense physical activities are more likely to be maintained than high-intensity activities (Pate et al., 1995). This is quite encouraging, as many women enjoy walking as a form of exercise and the majority of women who work outside the home continue to perform most household duties (Hochschild, Machung, & Pringle, 1995).

PHYSICAL ACTIVITY ACROSS THE LIFESPAN

Children and adolescence

Physical activity is very important in the growth, maturation, and development of children and adolescents (Allison & Adlaf, 1997). In addition to its role in providing social, psychological, physical, and academic benefits (Keays & Allison, 1995), regular physical activity in childhood and adolescence is believed to be central to the establishment of long-term positive health-related attitudes and behaviours (Lewis et al., 1993). Furthermore, there is good evidence to suggest that sports, active living, and physical education can have a positive effect on self-esteem in adolescent women (Keays & Allison, 1995).

It appears that involvement in physical activity begins to decline during adolescence and continues to do so throughout adulthood. This is evident from the significantly lower levels of enrolment in physical education in the Ontario elementary schools at each successive grade (Allison & Adlaf, 2000). Social demands and lifestyle changes during adolescence and college or university years (including increased use of cigarettes, alcohol, and drugs, increased emphasis on relationships, dating, and social life) can all reduce the time spent on physical activity (Allison, Dwyer, & Makin, 1999). According to American data, lack of time was the most frequently mentioned barrier to teenagers' involvement in physical activity (Stephens & Wentz, 1998).

Statistics from the Canadian Fitness and Lifestyle Research Institute show that girls are less active than boys, with teenaged girls reportedly devoting fewer than 12 hours a week to physical activities; teenaged boys, on the other hand, devote about 17 hours to physical activity (Canadian Fitness and Lifestyle Institute, 2001). The difference in participation rates among girls may be due to personal choice, inequities in opportunities to engage in regular physical activity, or sex differences in perceived barriers (Allison & Adlaf, 1997). For instance, adolescent girls and women are more likely than boys and men to underestimate their ability to participate in sports and physical activity (Canadian Fitness and Lifestyle Institute, 2001). Beliefs about one's lack of skill or ability have been shown to increase with age (Canadian Fitness and Lifestyle Institute, 2001).

Excessive exercise

According to the 1996/97 NPHS data, females aged 13 to 20 were more concerned with being overweight than males within the same age group (Statistics Canada, 1997). Sociocultural influences are known to affect adolescent eating patterns and behaviours (Herbold & Frates, 2000). Preoccupation with the ideal body image and the desire to attain it may lead to excessive exercise and prolonged periods of dieting and restrained eating (Kinzl, Traweger, Trefalt, Mangweth, & Biebl, 1999). Excessive exercise used to reduce or control body weight, rather than for physical health and enjoyment, has the potential to become a harmful behaviour and may lead to over-training and psychological symptoms (Paluska & Schwenk, 2000). In 1987 the definition of bulimia nervosa was revised in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R) to include excessive exercise as a purging method (National Eating Disorder Information Centre, 2000). Despite the problems which may be associated with excessive exercise, anorexia, and bulimia, which together affect approximately five percent of young women, the dangers to young women of underactivity (40–60 percent) and overweight (10–30 percent) constitute a much greater public health problem.

For female athletes, the desire to excel and maintain "competition weight" can lead to increased training and disordered eating, which in turn can produce osteoporosis and delay sexual maturation (Herbold & Frates, 2000). Disordered eating, amenorrhea, and osteoporosis, the "female athlete triad," have been shown to be especially prevalent among women engaging in sports such as diving, gymnastics, and skating which place undue emphasis on size and weight (Herbold & Frates, 2000). Symptoms can include poor performance in competition, an inability to maintain training loads, persistent fatigue, frequent illness, disturbed sleep, and alterations in mood state (MacKinnon, 2000a; MacKinnon, 2000b). Awareness, detection, and management of this disorder require a multidisciplinary approach from athletes, parents, coaches, primary care physicians, and mental health professionals.

Exercise during pregnancy and the postpartum period

To date, there is no evidence that indicates any contraindications to exercise during normal pregnancy. One study found that women who exercised in the three months before pregnancy felt better during the first trimester than those who did not (Sternfeld, Quesenberry, Eskanazi, & Newman, 1995). It has also been noted that the vibratory and auditory stimuli associated with exercise may enhance functional maturation of the fetal brain (Clapp, 1996). However, Canadian data have suggested that women who exercised less than twice and more than five times a week were at a higher risk of having low-birth-weight babies than women who exercised three to four times a week (Campbell & Mottola, 2001).

Both exercise and breastfeeding are energy-demanding activities, and concerns have often been raised about the impact of exercise on milk production and hence on the nutrition of the newborn. Studies have found that active lactating women generally consume enough calories to match their exercise and lactation requirements and have found no evidence to suggest that exercise alters milk volume or nutrient content (Quinn & Carey, 1999). Furthermore, since lactation can result in a loss of bone mineral content, exercise may help to minimize this loss (Quinn & Carey, 1999).

A study conducted by Hinton and Olson (2001) reported that older women who were better educated and had larger household incomes were more likely to exercise prior to pregnancy. The authors also found that "exercise self-efficacy" (the belief in one's ability to exercise) and BMI were positive predictors of exercise behaviour during pregnancy (Hinton & Olson, 2001). One study conducted by Walker and colleagues showed that depressive symptoms and low family incomes were related to poor health behaviours such as inactivity during early pregnancy (Walker, Cooney, & Riggs, 1999).

Physical activity in adults

Age is the most important factor influencing involvement and adherence in sport and physical activity (Rudman, 1989). Participation in moderate to vigorous types of activities generally decreases, and physical inactivity increases, with age (Canadian Fitness and Lifestyle Institute, 2001; Scharff, Homan, Kreuter, & Brennan, 1999). In 1998/99, only 31 percent of women aged 65 and older and 41 percent of men aged 65 and older participated in moderate leisure-time physical activity (Statistics Canada, 1999a).

Following menopause, women are at increased risk of cardiovascular disease, diabetes, osteoporosis, breast cancer, and functional limitations. Adopting healthy behaviours, including regular exercise in later life is associated not only with an increased lifespan but with an increase in health span (Vita, Terry, Hubert, & Fries, 1998). Since health and well-being at older ages are modifiable, substantial gains could be achieved by investing in the promotion of health and fitness throughout the lifespan (Vita et al., 1998). Sedentary women who become active in middle or later adulthood, for example, still have a lower risk of stroke than their sedentary counterparts (Hu et al., 2000).

Canadian senior women strongly agree that there are too few sources of information, programs, services, or fitness facilities in their local community (Canadian Fitness and Lifestyle Institute, 2001). Concerns for personal safety in the neighbourhood, access to facilities, financial costs, fear of injury, and perceived poor health have also been reported by older women as barriers to physical activity (Marcus & Forsyth, 1998). These findings indicate that current programs and facilities are less likely to address the activity needs of older women (Canadian Fitness and Lifestyle Institute, 2001).

BARRIERS TO PHYSICAL ACTIVITY

In 1996/97, 50 percent of Canadian women reported that they had taken action to improve health during the previous year by increasing physical activity and that they intended to do more physical activity in future (Statistics Canada, 1997). However, many barriers and structural limitations in everyday life still impede women's participation in physical activity. Lack of time has been reported as one of the major barriers to physical activity (King et al., 1992; Shaw, 1994). Women report that time taken away from work and family obligations is a key impediment to obtaining enough exercise (Verhoef & Love, 1992; Verhoef, Love, & Rose, 1992). Time constraints and the demands of women's multiple roles in the workplace and at home leave them little time for physical activity (Scharff et al., 1999; Yoshida, Allison, & Osborn, 1988).

Girls and women who are economically disadvantaged and lack education, who belong to ethnic minority groups, or are disabled also find it difficult to participate in physical activity (Hoffman, 1995; Kidd, 1995; Vertinsky, Batth, & Naidu, 1996) and as a result they are more likely to be sedentary than the general population (Ainsworth, Keenan, Strogatz, Garrett, & James, 1991). The prevalence of physical inactivity amongst these groups increases the likelihood of developing diseases related to inactivity (Taylor, Baranowski, & Young, 1998).

Socioeconomic status

There is a positive relationship between physical activity and socioeconomic status; as education increases so does the likelihood of an active lifestyle (Federal Provincial and Territorial Advisory Committee on Population Health, 1999). Inactivity among those with lower incomes may be partly due to less discretionary time or a lack of financial resources for leisure pursuits (Allison, 1996). According to recent Canadian data, leisure-time physical inactivity was most prevalent among men and women in the lowest socioeconomic category, particularly if judged by level of education (Choinière, Lafontaine, & Edwards, 2000). Although economic constraints have been reported by both men and women as barriers to leisure participation, women's lower earning power is particularly constraining on activity levels especially during leisure time pursuits (Shaw, 1994). According to the physical activity monitor 1999 (Canadian Fitness and Lifestyle Institute, 2001), women in low-income groups find the cost of participating in physical activity too great.

Social support

According to the Canadian Physical Activity Monitor, social support from family and friends is strongly linked to regular physical activity (Canadian Fitness and Lifestyle Institute, 2001). A European study conducted by Stahl and colleagues found that those women who experience low support from their personal environment (i.e., from family, friends, school, and workplace) are more than twice as likely to be sedentary as those who report high social support (Stahl et al., 2001). A relationship between social support and physical activity behaviour tends to be more consistent for women than for men (Marcus & Forsyth, 1998; Treiber et al., 1991). Family social support is identified as a strong predictor of exercise habits and maintenance of activity for young girls and women (Marcus & Forsyth, 1998). The type of support that is most helpful may depend on non-psychological factors, such as women's specific roles and demands in the workplace and at home (Marcus & Forsyth, 1998). On the other hand, an interesting finding in a population of middle-aged and older women from various ethnic backgrounds indicates that regular exercisers were less reliant on social support to maintain their exercise behaviour (Eyler et al., 1999).

SUBPOPULATIONS

WOMEN WITH DISABILITIES

Women with disabilities are less likely to engage in regular moderate physical activity than people without disabilities, a behaviour that puts them at an increased risk of developing chronic diseases such as heart disease, obesity, diabetes, and osteoporosis (LaPorte et al., 1983; Nosek, 2000; Pitetti & Tan, 1990; Rimmer, Braddock, & Fujiura., 1993; Rimmer, Braddock, & Pitetti, 1996). Studies have consistently found that participation in regular physical activity among persons with selected impairments and disabilities results in improved functional status and better quality of life (Heath & Fentem, 1997). Physical activity can help people with chronic disabling conditions by improving their stamina and strength; preventing further loss of bodily function; reducing stress, joint swelling, and pain; helping to control blood pressure and body weight; and increasing general health and well-being (Compton, Eisenman, & Henderson, 1989; Janssen et al., 1994; Santiago, Coyle, & Kinney, 1993; Thomas, 1999). Lack of energy, time, transportation, opportunity, and choices, as well as distant location of facilities, dependence on others, and concern for physical and psychological safety have all been identified as barriers to physical activity in disabled individuals (Dowler & Jordan-Simpson, 1990; Henderson, Bedini, Hecht, & Schuler, 1995). There is little information and intervention research about women with disabilities such as quadriplegia, paraplegia, intellectual disabilities, multiple sclerosis, and poliomyelitis and physical activity (Taylor, Baranowski, & Young, 1998). A need exists for more research in Canada to examine physical activity among disabled women.

IMMIGRANT WOMEN AND WOMEN OF VISIBLE MINORITIES

According to American data, physical inactivity is more prevalent among ethnic minority women than among Caucasian women (Crespo, Smit, Anderson, Carter-Pokras, & Ainsworth, 2000). One study has found that minority women across all ages report low participation rates (Kriska, 1998). However, an examination of the patterns of physical activity among minority women found that although participants did not identify themselves as "exercisers," they indicated that they got enough physical activity from caregiving, housekeeping, and workday activities (Eyler et al., 1998). The way that "leisure-time" is conventionally defined in some surveys and studies may lend itself to misinterpretation, especially amongst minority women (Eyler et al., 1998). This finding is consistent with other research that has suggested that higher levels of physical activity at work may explain the lack of participation in leisure-time activities within multicultural groups (Crespo et al., 2000).

In Canada, minority groups tend to be overrepresented in lower income groups (Federal, Provincial, and Territorial Advisory Committee on Population Health, 1999), and it is therefore believed that socioeconomic status accounts for most of the differences in activity between minority and white populations (Clark, 1995). Research has consistently identified support from community, family, and friends as important factors influencing activity participation rates among minority groups (Avila & Hovell, 1994; Kumanyika & Charleston, 1992; Lewis et al., 1993).

Multicultural groups may have different attitudes, beliefs, and behaviours toward preventive health practices than members of the mainstream culture do. Many cultural groups may find it unacceptable for women to take time out to focus on themselves, or to temporarily remove themselves from the obligations of family and work in order to exercise (Kriska, 1998). Several environmental and personal barriers to physical activity such as safety, availability, cost, lack of time, health concerns, and lack of motivation have been identified in this population (Eyler et al., 1998).

GLOSSARY

Insufficient activity — also referred to as inactivity — is defined as expending fewer than three kilocalories per kilogram of body weight daily, or roughly the equivalent of walking an hour a day (Physical Activity Monitor, 1999).

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PART FIVE: SUBPOPULATIONS

CHAPTER 22 – ADOLESCENT GIRLS

MARSHA M. COHEN

INTRODUCTION

Adolescent girls constitute about six percent of the Ontario population (see Chapter 1). This chapter will first provide an overview of some health status indicators for adolescents. The chapter will then examine some of the important issues facing Canadian teenagers today. These issues include general health and illness, physical and leisure activity, substance use and gambling, violence, contraception, and teenage pregnancy. Data from various sources and jurisdictions are used: Ontario, other provinces, Canada, or the United States. To ascertain the extent of any issue for adolescent girls, comparisons with boys are provided where available.

METHODS AND DATA SOURCES

For the overview of indicators of adolescent health status, data from Statistics Canada and the Reproductive and Child Health Division of Health Canada are used.

Data from surveys of adolescents are used to provide a cross-section of the prevalence of various issues pertinent to Ontario adolescent girls. The data sources include:

- The Adolescent Health Survey: the most extensive survey on the physical and emotional health of youth in British Columbia. About 16,000 BC students in Grades 7–12 participated in the study.
- Centre for Addiction and Mental Health: Canadian Campus Survey. This survey, conducted in 1998, focused on 7,800 university undergraduate students in 16 universities across Canada.
- Centre for Addiction and Mental Health: Ontario Student Drug-Use Survey. This school-based report uses data from the 2001 survey of 4,317 students from 38 school boards, 11 schools, and 285 classes from Grades 7–13 in Ontario, and the 1999 Ontario Student Drug-Use Survey; data are provided in this report by sex or school grade, but not sex *and* school grade.
- Health Canada: Trends in the Health of Canadian Youth. This report is based on the data collected through the 1997/98 survey cycles for the World Health Organization Collaborative Study: Health Behaviours in School Age Children. The data are from 11, 13, and 15-year-olds in Canada (Grades 6–10); 6,259 Canadian children took part.
- Health Indicators, April 2001, Catalogue no 82-221-XIE. This report is composed of data compiled from the Canadian National Population Health Survey 1998/99.
- The US Youth Risk Behaviour Survey. This survey is a school-based survey carried out every two years in the United States. Data are compiled from state surveys.
- The Health Behaviour of School-Aged Children (US). This survey, carried out in 1998, involved 15,686 students in Grades 6–10.
- Journal references.

INTERPRETIVE CAUTIONS

This chapter uses data gleaned from recent Canadian, Ontario, and US surveys, most of which are school-based. It is well known that school-based surveys are cost-effective and increase the rate of student participation (Centre for Addiction and Mental Health, 1998). However, as with any survey, there are a number of limitations to consider. First, school-based surveys do not include students who are not at school, but absent adolescents in particular may be at higher risk for substance abuse, pregnancy, and poor health. Second, the surveys are based on self-report. There is a potential for overreporting good behaviours (e.g., eating breakfast) and a potential for underreporting poor health behaviours (e.g., eating potato chips daily). Errors may also be introduced by adolescents' unintentional problems with recall. A final caveat is that survey data are limited to the questions that are asked, and other behaviours are not probed. Unfortunately, data respecting the age and sex of the participants was not included in all the surveys, a factor that limits the information provided in this report.

FINDINGS AND CONCLUSIONS

MORTALITY AND HOSPITALIZATION RATES

The rates of death and hospitalization are low for adolescent girls aged ten to 19 years. The leading causes of death for adolescent girls are unintentional injuries, cancer, and suicide (Exhibit 22-1). For adolescent girls aged ten to 14, the main causes of death are unintentional injuries, cancer, and diseases of the nervous system. For adolescent girls aged 15 to 19, the leading causes of death are unintentional

Exhibit 22-1. Leading Causes of Death and Hospitalization and Rate per 100,000, for Adolescent Girls, Aged 10–14 and 15–19, Canada, 1997

Rank	Deaths 10–14 Years (Rate per 100,000)		Deaths 15–19 Years (Rate per 100,000)		Hospitalization 10–14 Years (Rate per 100,000)		Hospitalization 15–19 Years (Rate per 100,000)	
1	Unintentional injuries	4.7	Unintentional injuries	15.6	Respiratory diseases	494.8	Mental disorders	695.0
2	Cancer	2.3	Suicide	5.5	Diseases of the digestive system	329.5	Diseases of the digestive system	616.7
3	Diseases of the nervous system	1.3	Cancer	3.3	Unintentional injuries	307.8	Respiratory diseases	608.3
4	Suicide	1.2	Diseases of the circulatory system	1.5	Mental disorders	251.1	Genito-urinary disorders	495.8
5	Congenital anomalies	0.7	Infectious diseases	0.8	Musculo-skeletal diseases	138.4	Unintentional injuries	300.5
6	Endocrine diseases	0.8	Homicide	0.7	Genito-urinary diseases	119.5	Self-inflicted injuries	269.0
7	Diseases of the circulatory system	0.8	Diseases of the nervous system	0.6	Diseases of the nervous system	111.4	Musculo-skeletal diseases	203.0
8	Respiratory diseases	0.7	Endocrine diseases	0.5	Endocrine diseases	95.0	Infectious diseases	135.6
9	Diseases of the digestive system	0.4	Respiratory diseases	0.5	Self-inflicted injuries	94.2	Endocrine diseases	117.7
10	Homicide	0.4	Blood diseases	0.4	Infectious diseases	86.4	Diseases of the nervous system	
	All causes	15.7		33.5		2,613		4,423

Data source: Health Canada Population and Public Health Branch, 1996 97 injuries, suicide, and cancer. Homicides are the tenth leading cause of death for ten to 14 year old girls and the sixth leading cause of death for adolescent girls aged 15 to 19 years.

The main causes of hospitalization for adolescent girls aged ten to 14 are respiratory diseases, diseases of the digestive system, and unintentional injuries. For older adolescent girls, the leading causes of hospitalization are mental disorders, diseases of the digestive system, and respiratory diseases.

INJURIES

Mortality from injuries was lower for adolescent girls than for boys (Exhibit 22-2). Adolescents aged 15 to 19 had higher death rates from injuries than children aged ten to 14. The death rate for motor vehicle crashes was about half as high for girls as it was for boys. Looking at trends in injury deaths over time for adolescent girls, deaths from all injuries decreased, as exemplified by deaths related to motor vehicles (Exhibit 22-3). However, rates of death by suicide increased over time for girls, whereas the rates were unchanged for boys over time (data not shown).

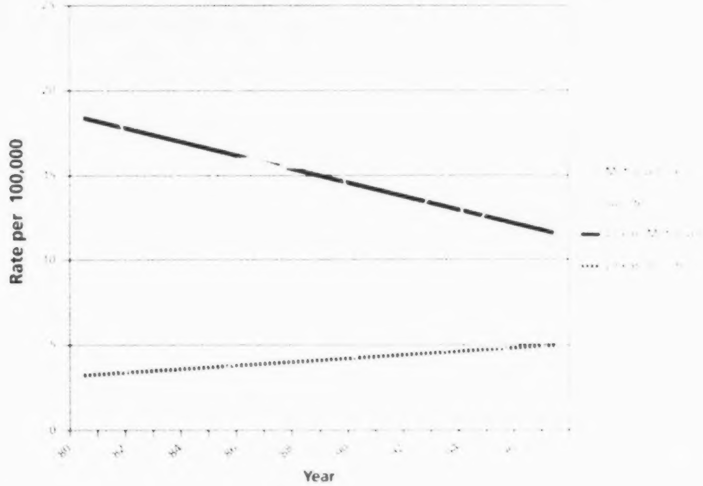
Exhibit 22-2. Age-Standardized Mortality Rates per 100,000* for Injuries, Canadian Males and Females by Age, 1997

	Girls		Boys	
Cause	10–14	15–19	10–14	15–19
All causes	15.7	33.5	23.7	79.0
All injuries	6.4	22.1	14.1	58.6
All unintentional injuries	4.7	15.6	9.6	36.0
Motor vehicle crashes	3.3	12.7	4.2	25.2
Falls	0	0.2	0.4	1.1
Suicide	1.2	5.5	3.8	19.9
Homicide	0.4	0.7	0.6	2.2
Other violence	0	0	0	0
Injuries of undetermined origin	0.1	0.3	0.1	0.6

Data source: Health Canada Population and Public Health Branch 1996–97

* Adjusted to the 1991 Canadian population

Exhibit 22-3. Age-Specific Mortality Rate per 100,000 Population, Adolescent Girls Aged 15–19, Canada 1997, by Cause



Data source: Child Injury Division, Health Canada

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2	Cancer	2.3	Suicide	5.5	Diseases of the digestive system	329.5	Diseases of the digestive system	616.7
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5	Congenital anomalies	0.7	Infectious diseases	0.8	Musculo-skeletal diseases	138.4	Unintentional injuries	300.5
6	Endocrine diseases	0.8	Homicide	0.7	Genito-urinary diseases	119.5	Self-inflicted injuries	269.0
7	Diseases of the circulatory system	0.8	Diseases of the nervous system	0.6	Diseases of the nervous system	111.4	Musculo-skeletal diseases	203.0
8	Respiratory diseases	0.7	Endocrine diseases	0.5	Endocrine diseases	95.0	Infectious diseases	135.6
9	Diseases of the digestive system	0.4	Respiratory diseases	0.5	Self-inflicted injuries	94.2	Endocrine diseases	117.7
10	Homicide	0.4	Blood diseases	0.4	Infectious diseases	86.4	Diseases of the nervous system	
	All causes	15.7		33.5		2,613		4,423

Data source: Health Canada Population and Public Health Branch, 1996–97.

injuries, suicide, and cancer. Homicides are the tenth leading cause of death for ten to 14 year old girls and the sixth leading cause of death for adolescent girls aged 15 to 19 years.

The main causes of hospitalization for adolescent girls aged ten to 14 are respiratory diseases, diseases of the digestive system, and unintentional injuries. For older adolescent girls, the leading causes of hospitalization are mental disorders, diseases of the digestive system, and respiratory diseases.

INJURIES

Mortality from injuries was lower for adolescent girls than for boys (Exhibit 22-2). Adolescents aged 15 to 19 had higher death rates from injuries than children aged ten to 14. The death rate for motor vehicle crashes was about half as high for girls as it was for boys. Looking at trends in injury deaths over time for adolescent girls, deaths from all injuries decreased, as exemplified by deaths related to motor vehicles (Exhibit 22-3). However, rates of death by suicide increased over time for girls, whereas the rates were unchanged for boys over time (data not shown).

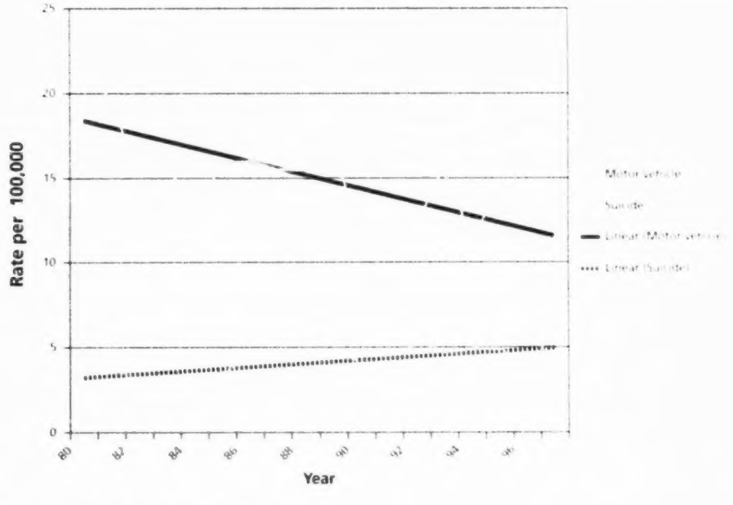
Exhibit 22-2. Age-Standardized Mortality Rates per 100,000* for Injuries, Canadian Males and Females by Age, 1997

	Girls		Boys	
Cause	10–14	15–19	10–14	15–19
All causes	15.7	33.5	23.7	79.0
All injuries	6.4	22.1	14.1	58.6
All unintentional injuries	4.7	15.6	9.6	36.0
Motor vehicle crashes	3.3	12.7	4.2	25.2
Falls	0	0.2	0.4	1.1
Suicide	1.2	5.5	3.8	19.9
Homicide	0.4	0.7	0.6	2.2
Other violence	0	0	0	0
Injuries of undetermined origin	0.1	0.3	0.1	0.6

Data source: Health Canada Population and Public Health Branch, 1996–97

* Adjusted to the 1991 Canadian population

Exhibit 22-3. Age-Specific Mortality Rate per 100,000 Population, Adolescent Girls Aged 15–19, Canada 1997, by Cause



Data source: Child Injury Division, Health Canada

Exhibit 22-4. Crude Hospitalization Rate per 100,000 Population for Injuries, by Sex and Age, Canada, 1996/97

	Girls		Boys	
Cause	10–14	15–19	10–14	15–19
All causes	2,613.4	4,423.1	2,750.9	3,463.8
All injuries	423.7	688.3	674.1	1,052.2
All unintentional injuries	307.8	372.6	636.3	830.4
Motor vehicle crashes	42.4	140.5	64.2	211.2
Falls	125.1	81.5	239.4	205.1
Self-inflicted	94.2	269.0	16.9	100.8
Assault	8.7	22.0	15.2	99.7
Other violence	0	0.3	0.2	0.2
Injuries; undetermined intent	13.0	24.4	5.5	21.1

Data source: Child Injury Division, Health Canada

Boys were more likely to be hospitalized for injuries than girls (Exhibit 22-4) and older teens more likely to be hospitalized than younger adolescents. Younger adolescents were more likely to be hospitalized for falls than their older peers. Girls were more likely to be hospitalized for self-inflicted injuries than boys in both the ten to 14 and 15 to 19 age ranges. Boys were more frequently hospitalized for assault than were girls.

The data for mortality and hospitalization for injuries likely reflect the most serious injuries and do not give a picture of non-hospitalized injuries. In the Health Behaviours of School-Aged Children Survey (Health Canada, 1998), about 30 percent of Grade 6 girls and 38 percent of Grade 6 boys were injured in the previous year and were treated by a health-care professional (Exhibit 22-5). The proportion of children injured increased somewhat as they got older. The reasons for the injuries were not explored in the survey.

Exhibit 22-5. Proportion of Students Who Were Injured, Wore Seatbelts, and Wore Bicycle Helmets, by Grade and Sex, Canada, 1998

Grade		Students Injured In Past Year and Treated by Health Professional (%)	Students Who Always Wore a Seatbelt (%)	Students Who Often or Always Wore a Bicycle Helmet
6	Girls	30	75	60
	Boys	38	68	54
8	Girls	35	63	32
	Boys	43	61	32
10	Girls	36	66	18
	Boys	43	61	17

Data source: WHO Cross-National Collaborative Study, Trends in Canadian Youth, *Health Canada, 1998.*

Behaviour intended to prevent injuries in motor vehicle accidents was determined by asking students if they always used a seatbelt while travelling in a car or truck. Girls were more likely than boys to respond that they always used a seatbelt. The use of seatbelts declined somewhat as children got older. Most students in Grade 6 reported that they wore a bicycle helmet (girls more often than boys – 60% vs. 54%). The use of bicycle helmets declined with older children, but this may be because older children were no longer riding bicycles.

In sum, boys are more likely to be injured than girls, and girls exhibit more preventive behaviour toward reducing injuries.

GENERAL HEALTH AND ILLNESS

Canadian girls have more functional health problems than boys do, and are more likely to rate their health as fair or poor. About 16 percent of girls reported a moderate or severe functional health problem (Exhibit 22-6).

Exhibit 22-6. Proportion of Students Who Rated Their Health as Fair or Poor and Who Claimed Moderate or Severe Functional Health Problems, by Sex and Age, Canada, 1994/95 to 1998/99

Age		Fair or Poor Self-Rated Health (%)	Moderate or Severe Functional Health Problems (%)
12–14	Girls	†	5.2
	Boys	†	4.2
15–19	Girls	2.0	11.6
	Boys	†	7.3
20–24	Women	2.6	10.2
	Men	2.4	6.3

Data source: Statistics Canada, National Population Health Survey, Health Indicators, April 2001

† Coefficient of variation greater than 33% (numbers suppressed).

Younger Canadian boys have higher rates of asthma, but, with age, girls become more likely to suffer from asthma than boys. This difference is apparent in early adolescence. While boys may "outgrow" their asthma, the opposite is true for girls, and girls in their late teens are more likely to surpass boys in the incidence of asthma (Exhibit 22-7).

Girls were also more likely to experience pain or severe pain than boys; although the youngest teens did not claim to experience chronic pain, a small percentage of girls reported experiencing pain as young as 15 to 19 years old. Girls were also more likely than boys to report an activity limitation or handicap. About five percent of girls aged 12 to 14 and nine percent of girls aged 15 to 19 claimed an activity limitation or handicap (Exhibit 22-7).

Exhibit 22-7. Proportion of Students Who Reported Asthma, Pain, or Discomfort Affecting Activities, Severity of Pain, or Activity Limitation or Handicap, by Age and Sex, Canada, 1998/99

Age		Asthma (%)	Pain or Discomfort that Affects a Few Activities (%)	Severity of Pain or Discomfort: Moderate (%)	Activity Limitation or Handicap (%)
12–14	Girls	8.9	†	†	5.5
	Boys	14.2	†	†	4.2
15–19	Girls	14.2	2.3	2.3	8.8
	Boys	10.7	†	†	5.5
20–24	Women	12.9	2.6	4.5	11.9
	Men	11.5	†	†	7.0

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Self-inflicted	94.2	269.0	16.9	100.8
Assault	8.7	22.0	15.2	99.7
Other violence	0	0.3	0.2	0.2
Injuries, undetermined intent	13.0	24.4	5.5	21.1

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	Boys	43	61	32
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	Boys	43	61	17

Data source: WHO Cross-National Collaborative Study. Trends in Canadian Youth. *Health Canada, 1998*

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Age		Fair or Poor Self-Rated Health (%)	Moderate or Severe Functional Health Problems (%)
12–14	Girls	†	5.2
	Boys	†	4.2
15–19	Girls	2.0	11.6
	Boys	†	7.3
20–24	Women	2.6	10.2
	Men	2.4	6.3

Data source: Statistics Canada, National Population Health Survey, Health Indicators, April 2001

† Coefficient of variation greater than 33% (numbers suppressed)

Younger Canadian boys have higher rates of asthma, but, with age, girls become more likely to suffer from asthma than boys. This difference is apparent in early adolescence. While boys may "outgrow" their asthma, the opposite is true for girls, and girls in their late teens are more likely to surpass boys in the incidence of asthma (Exhibit 22-7).

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Age		Asthma (%)	Pain or Discomfort that Affects a Few Activities (%)	Severity of Pain or Discomfort: Moderate (%)	Activity Limitation or Handicap (%)
12–14	Girls	8.9	†	†	5.5
	Boys	14.2	†	†	4.2
15–19	Girls	14.2	2.3	2.3	8.8
	Boys	10.7	†	†	5.5
20–24	Women	12.9	2.6	4.5	11.9
	Men	11.5	†	†	7.0

Data source: Statistics Canada, National Population Health Survey, Health Indicators, April 2001

† Coefficient of variation greater than 33% (numbers suppressed)

The survey of students in Grades 6 to 10 across Canada asked students about their general health and general health problems (Exhibit 22-8). In response to being asked if they "felt healthy," girls were less likely than boys to respond positively. The percentage of girls who felt very healthy declined from 48 percent in Grade 6 to only 21 percent by Grade 10. Girls were much more likely than boys to report having a headache and somewhat more likely than boys to report a backache. Girls also reported more frequent use of medication for a stomach ache than boys. When asked about long-term illnesses or medical conditions, girls were only somewhat more likely than boys to report (35% of girls in Grade 10 vs. 26% of boys) (Exhibit 22-8).

Exhibit 22-8. Proportion of Students Who Felt Very Healthy, Had Headache, Backache, Used Medication for Stomach Ache, or Had a Long-Term Illness, by Grade and Sex, Canada 1998

Grade		Feel Very Healthy (%)	Had Headache at Least Once per Week (%)	Had Backache at Least Once per Week (%)	Used Medication for Stomach Ache Last Month (%)	Had Long-Term Illness or Medical Condition (%)
6	Girls	48	31	39	25	28
	Boys	55	24	40	18	28
8	Girls	30	36	49	31	33
	Boys	44	29	46	16	29
10	Girls	21	45	63	36	35
	Boys	41	23	59	13	26

Data source WHO Cross-National Collaborative Study, Trends in Canadian Youth Health Canada, 1998

In sum, girls have a greater tendency than boys to report a health problem. They are more likely than boys to experience pain, an activity limitation, and a long-term illness or medical condition. And girls are also less likely to report that they feel healthy.

PHYSICAL AND LEISURE ACTIVITY

According to data in the National Population Health Survey, physical activity among adolescents appears to decline as they get older (Exhibit 22-9). About 38 percent of girls aged 12 to 14 were physically active and in women aged 20 to 24 this percentage declined to 25 percent. In general, girls were less physically active than boys. More girls and young women were physically inactive: 27 percent of girls aged 12 to 14 were physically inactive and this percentage rose to nearly half (46%) of the young women in the 20 to 24 age group (Exhibit 22-9).

Exhibit 22-9. Proportion of Students Who Were Physically Active, Physically Inactive, by Age and Sex, Canada, 1998/98

Age		Physically Active (%)	Physically Inactive (%)
12–14	Girls	37.9	27.1
	Boys	41.3	20.8
15–19	Girls	31.9	48.8
	Boys	45.1	28.1
20–24	Women	24.8	45.6
	Men	32.7	39.5

Data source Statistics Canada, National Population Health Survey, Health Indicators, April 2001

In response to its questions about exercise, the Canadian school-based survey found that girls were much less likely than boys to exercise two or more times a week (Exhibit 22-10). Seventy-one percent of boys in Grade 6 exercised, compared to 57 percent of girls. These percentages remained much the same for both boys and girls by Grade 10, likely demonstrating that there was a core of teenagers who exercised when young and continued to exercise as they got older. It has been proposed that teens may be inactive owing to passive activities such as watching television or playing computer games. A greater body mass index and higher skin fat levels have been found in children who watch four or more hours of television per day (Andersen, Crespo, Bartlett, Cheskin, & Pratt, 1998). In the Canadian school-based survey, girls were less likely than boys to watch television four or more hours a day or to play video games. However, by Grade 10, one in five girls (19%) spent four or more hours a day watching television.

Exhibit 22-10. Proportion of Students Who Exercised, Watched Television, or Played Video Games, by Grade and Sex, Canada, 1998

Grade		Exercised Two or More Times a Week (%)	Watched Television Four or More Hours a Day (%)	Played Video Games Four or More Hours a Week (%)
6	Girls	57	22	13
	Boys	71	32	39
8	Girls	56	25	11
	Boys	74	30	40
10	Girls	54	19	5
	Boys	75	23	35

Data source: WHO Cross-National Collaborative Study, Trends in Canadian Youth, Health Canada, 1998

Many more boys than girls confessed to a gambling problem or pathological gambling (Exhibit 22-11). Both girls and boys had attended a rave in the year preceding the study (16.2% of girls and 21.4% of boys in Grades 7–13).

Exhibit 22-11. Proportion of Students Reporting any Gambling Problem, Pathological Gambling, Rave Attendance, Students in Grades 7–13, Ontario, 1999

	Any Gambling Problem (%)	Pathological Gambling (%)	Rave Attendance (%)
Girls	6.1	2.5	16.2
Boys	20.5	9.1	21.4

Data source: Centre for Addiction and Mental Health, Ontario Student Drug Use Survey, 1999, CAMH Population Studies eBulletin 2000

The survey of students in Grades 6 to 10 across Canada asked students about their general health and general health problems (Exhibit 22-8). In response to being asked if they "felt healthy," girls were less likely than boys to respond positively. The percentage of girls who felt very healthy declined from 48 percent in Grade 6 to only 21 percent by Grade 10. Girls were much more likely than boys to report having a headache and somewhat more likely than boys to report a backache. Girls also reported more frequent use of medication for a stomach ache than boys. When asked about long-term illnesses or medical conditions, girls were only somewhat more likely than boys to report (35% of girls in Grade 10 vs. 26% of boys) (Exhibit 22-8).

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Data source: WHO Cross-National Collaborative Study, Trends in Canadian Youth: *Health Canada, 1998.*

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12–14	Girls	37.9	27.1
	Boys	41.3	20.8
15–19	Girls	31.9	48.8
	Boys	45.1	28.1
20–24	Women	24.8	45.6
	Men	32.7	39.5

Data source: Statistics Canada, National Population Health Survey, Health Indicators, April 2001.

In response to its questions about exercise, the Canadian school-based survey found that girls were much less likely than boys to exercise two or more times a week (Exhibit 22-10). Seventy-one percent of boys in Grade 6 exercised, compared to 57 percent of girls. These percentages remained much the same for both boys and girls by Grade 10, likely demonstrating that there was a core of teenagers who exercised when young and continued to exercise as they got older. It has been proposed that teens may be inactive owing to passive activities such as watching television or playing computer games. A greater body mass index and higher skin fat levels have been found in children who watch four or more hours of television per day (Andersen, Crespo, Bartlett, Cheskin, & Pratt, 1998). In the Canadian school-based survey, girls were less likely than boys to watch television four or more hours a day or to play video games. However, by Grade 10, one in five girls (19%) spent four or more hours a day watching television.

Exhibit 22-10. Proportion of Students Who Exercised, Watched Television, or Played Video Games, by Grade and Sex, Canada, 1998

Grade		Exercised Two or More Times a Week (%)	Watched Television Four or More Hours a Day (%)	Played Video Games Four or More Hours a Week (%)
6	Girls	57	22	13
	Boys	71	32	39
8	Girls	56	25	11
	Boys	74	30	40
10	Girls	54	19	5
	Boys	75	23	35

Data source: WHO Cross-National Collaborative Study, Trends in Canadian Youth, *Health Canada, 1998*

Many more boys than girls confessed to a gambling problem or pathological gambling (Exhibit 22-11). Both girls and boys had attended a rave in the year preceding the study (16.2% of girls and 21.4% of boys in Grades 7–13).

Exhibit 22-11. Proportion of Students Reporting any Gambling Problem, Pathological Gambling, Rave Attendance, Students in Grades 7–13, Ontario, 1999

	Any Gambling Problem (%)	Pathological Gambling (%)	Rave Attendance (%)
Girls	6.1	2.5	16.2
Boys	20.5	9.1	21.4

Data source: Centre for Addiction and Mental Health, Ontario Student Drug Use Survey, 1999. CAMH Population Studies eBulletin 2000

SEXUALLY TRANSMITTED DISEASES

Laboratory reports to health-care agencies and public health units suggest that adolescent girls more commonly suffer from STDs than boys (Exhibit 22-12). Chlamydia was the most frequently reported STD. However, the seeming prevalence of STDs among girls may be affected by certain qualifying factors: some STDs are more asymptomatic in men than in women, with the result that girls consult physicians more often than boys; and screening for STDs is more commonly performed for women (when they seek birth control, for example). Thus, it is likely that social factors, illness manifestation, and patterns of medical utilization explain the differing rates of STDs between adolescent girls and boys (Panchaud, Singh, Feivelson, & Darroch, 2000).

Exhibit 22-12. Rate/100,000 for Syphilis, Gonorrhoea, and Chlamydia, by Age and Sex, Canada, 1996

Age		Syphilis: Rate per 100,000	Gonorrhoea: Rate per 100,000	Chlamydia: Rate per 100,000
15–19	Girls	0.9	86.4	998.6
	Boys	0.3	33.3	114.8

Data source: Panchaud et al., 2000.

MENTAL HEALTH

Surveys of adolescents have incorporated measures of emotional health such as happiness and self-esteem (having confidence in oneself) or feelings of depression, as well as the risk of suicide.

Two different surveys report that girls have poorer self-esteem than boys. The discrepancy is small in Grade 6, but increases by Grade 10. In the National Population Health Survey of 1996/97, greater numbers of girls than boys reported low self-esteem (Exhibit 22-13). Twenty-one percent of girls in the 12 to 14 age group reported low self-esteem, whereas in the 15 to 19 age group, that percentage rose to 22 percent. In contrast, self-esteem for boys increased (that is, low self-esteem decreased from 15.5% to 12.6%). Girls were more likely than boys to show a probable risk of depression (Exhibit 22-13). However, boys were more likely than girls to commit suicide (the suicide rate in 1997 for 15–19 year olds was 18.5 per 100,000 for boys and 4.2 per 100,000 for girls). The reader is referred to Chapter 7 for a discussion of suicide patterns.

Exhibit 22-13. Proportion Reporting Low Self-Esteem, Probable Risk of Depression, and Rate of Suicide, by Age and Sex, Canada, 1998/99

Age		Low Self-Esteem (%)	Probable Risk of Depression (%)	Suicide Rate per 100,000 Population*
12–14	Girls	20.9	†	Not given
	Boys	15.5	†	Not given
15–19	Girls	22.1	5.0	4.2
	Boys	12.6	3.5	18.5
20–24	Women	16.3	9.9	4.1
	Men	11.1	4.5	29.0

Data source: Statistics Canada, National Population Health Survey, Health Indicators, April 2001.

** Statistics Canada Catalogue no. 82F0075XCB, 1997.*

† Coefficient of variation greater than 33% (numbers suppressed).

The report Health Behaviours in School-Aged Children (Health Canada, 1998) asked children if they felt happy about themselves. In Grade 6, most students reported that they were happy (girls, 48% vs. boys, 55%) (Exhibit 22-14). However, by Grade 10, the percentage of girls and boys who stated that they were very happy about themselves had both markedly decreased (girls 26% and boys 35%). Boys continue to have confidence in themselves as they get older (77% in Grade 6 and 73% in Grade 10). However, girls' self-confidence falls considerably in the same maturation period (72% in Grade 6, down to only 55% in Grade 10).

Exhibit 22-14. Proportion of Students Who Felt Very Happy, Had Confidence in Themselves, Felt Depressed, or Felt Lonely, by Grade and Sex, Canada, 1998

Grade		Felt "Very Happy" About Their Life (%)	Had Confidence in Themselves (%)	Felt Depressed at Least Once One Week for Six Months (%)	Very Often or Rather Often Felt Lonely (%)
6	Girls	48	72	23	16
	Boys	55	77	22	12
8	Girls	33	62	28	19
	Boys	42	74	20	11
10	Girls	26	55	35	21
	Boys	35	73	21	11

Data source: WHO Cross-National Collaborative Study, Trends in Canadian Youth, *Health Canada, 1998*

In Grade 6, there was no difference in the proportion of girls or boys who had felt depressed at least once a week in the previous six months (Exhibit 22-14). By Grade 10, the percentage of boys who reported that they felt depressed did not change (22% of boys in Grade 6 vs. 21% of boys in Grade 10). Over the same years, however, the percentage of girls who felt depressed increased (from 23% in Grade 6 to 35% in Grade 10). About 16 percent of Grade 6 girls claimed they felt lonely, a proportion that increased only slightly to 21 percent in Grade 10.

To summarize, in early adolescence, Grade 6 girls felt worse about themselves than boys, but the differences in self-esteem were slight. By Grade 10 a substantial proportion of girls had low self-esteem, felt depressed, and did not feel happy about their lives.

SUBSTANCE USE

The Ontario Drug Survey (2001) polled students in Grades 7 to 13 about their use of cigarettes, alcohol, and medical and non-medical drugs.

Exhibit 22-15 shows the proportion of students who use alcohol, marijuana, and cigarettes. The percentages of girls and boys using alcohol in the previous year were very similar (62.5% vs. 62.7%). Heavier use of alcohol or binge drinking was reported among boys than among girls. Marijuana use was higher among boys (25.9% of boys reported cannabis use in the previous four weeks as opposed to 19% of girls).

Exhibit 22-15. Proportion of Students Ever Using Alcohol, Marijuana, Cigarettes in the Past Year, by Sex, Students in Grades 7–13, Ontario, 1999

	Alcohol Used in Past Year (%)	Alcohol Two to Three Times per Month (%)	Binge Drinking in Past Four Weeks (%)	Cannabis Use in Past Four Weeks (%)	Cigarettes Used in Past Year (%)
Girls	62.5	13.4	23.4	19.0	23.6
Boys	62.7	14.1	31.7	25.9	20.9

Data source: Centre for Addiction and Mental Health, Ontario Student Drug Use Survey, 2001

SEXUALLY TRANSMITTED DISEASES

Laboratory reports to health-care agencies and public health units suggest that adolescent girls more commonly suffer from STDs than boys (Exhibit 22-12). Chlamydia was the most frequently reported STD. However, the seeming prevalence of STDs among girls may be affected by certain qualifying factors: some STDs are more asymptomatic in men than in women, with the result that girls consult physicians more often than boys; and screening for STDs is more commonly performed for women (when they seek birth control, for example). Thus, it is likely that social factors, illness manifestation, and patterns of medical utilization explain the differing rates of STDs between adolescent girls and boys (Panchaud, Singh, Feivelson, & Darroch, 2000).

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MENTAL HEALTH

Surveys of adolescents have incorporated measures of emotional health such as happiness and self-esteem (having confidence in oneself) or feelings of depression, as well as the risk of suicide.

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Exhibit 22-13. Proportion Reporting Low Self-Esteem, Probable Risk of Depression, and Rate of Suicide, by Age and Sex, Canada, 1998/99

Age		Low Self-Esteem (%)	Probable Risk of Depression (%)	Suicide Rate per 100,000 Population*
12–14	Girls	20.9	†	Not given
	Boys	15.5	†	Not given
15–19	Girls	22.1	5.0	4.2
	Boys	12.6	3.5	18.5
20–24	Women	16.3	9.9	4.1
	Men	11.1	4.5	29.0

Data source Statistics Canada, National Population Health Survey, Health Indicators, April 2001.

* *Statistics Canada Catalogue no. 82F0075XCB, 1997.*

† *Coefficient of variation greater than 33% (numbers suppressed)*

The report Health Behaviours in School-Aged Children (Health Canada, 1998) asked children if they felt happy about themselves. In Grade 6, most students reported that they were happy (girls, 48% vs. boys, 55%) (Exhibit 22-14). However, by Grade 10, the percentage of girls and boys who stated that they were very happy about themselves had both markedly decreased (girls 26% and boys 35%). Boys continue to have confidence in themselves as they get older (77% in Grade 6 and 73% in Grade 10). However, girls' self-confidence falls considerably in the same maturation period (72% in Grade 6, down to only 55% in Grade 10).

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6	Girls	48	72	23	16
	Boys	55	77	22	12
8	Girls	33	62	28	19
	Boys	42	74	20	11
10	Girls	26	55	35	21
	Boys	35	73	21	11

Data source: WHO Cross-National Collaborative Study Trends in Canadian Youth, *Health Canada, 1998*

In Grade 6, there was no difference in the proportion of girls or boys who had felt depressed at least once a week in the previous six months (Exhibit 22-14). By Grade 10, the percentage of boys who reported that they felt depressed did not change (22% of boys in Grade 6 vs. 21% of boys in Grade 10). Over the same years, however, the percentage of girls who felt depressed increased (from 23% in Grade 6 to 35% in Grade 10). About 16 percent of Grade 6 girls claimed they felt lonely, a proportion that increased only slightly to 21 percent in Grade 10.

To summarize, in early adolescence, Grade 6 girls felt worse about themselves than boys, but the differences in self-esteem were slight. By Grade 10 a substantial proportion of girls had low self-esteem, felt depressed, and did not feel happy about their lives.

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Exhibit 22-15. Proportion of Students Ever Using Alcohol, Marijuana, Cigarettes in the Past Year, by Sex, Students in Grades 7–13, Ontario, 1999

	Alcohol Used in Past Year (%)	Alcohol Two to Three Times per Month (%)	Binge Drinking in Past Four Weeks (%)	Cannabis Use in Past Four Weeks (%)	Cigarettes Used in Past Year (%)
Girls	62.5	13.4	23.4	19.0	23.6
Boys	62.7	14.1	31.7	25.9	20.9

Data source: Centre for Addiction and Mental Health, Ontario Student Drug Use Survey, 2001

Exhibit 22-16. Proportion of Students Using Hallucinogens, Non-Medical Stimulants, And Solvents, in the Past Year, Students in Grades 7–13, Ontario 2001

	Hallucinogens (%)	Cocaine (%)	Crack (%)	Glue (%)	Solvents (%)
Girls	9.6	3.9	1.6	2.3	6.0
Boys	13.2	4.6	2.4	3.7	5.5

Data source: Ontario Student Drug Use Survey, Centre for Addiction and Mental Health, 1999

Exhibit 22-17. Proportion of Students Using Ecstasy, GHB, Rohypnol, Non-Medical Tranquillizers, and Non-Medical Stimulants, in the Past Year, Students in Grades 7–13, Ontario, 2001

	Ecstasy (%)	GHB (Liquid Ecstasy) (%)	Rohypnol (%)	Non-Medical Tranquillizers (%)	Non- Medical Stimulants (%)
Girls	5.4	0.8	2.6	1.7	8.0
Boys	6.7	1.7	3.3	2.8	4.8

Data source: Ontario Student Drug Use Survey, Centre for Addiction and Mental Health, 1999

More girls than boys reported smoking (girls 23.6% vs. boys 20.9%). Smoking rates have been shown to be especially higher in adolescent girls aged 15 to 17 than in boys the same age (see Chapter 20).

Small numbers of students used recreational drugs (Exhibit 22-16 and 22-17). Boys were more likely than girls to use hallucinogens, cocaine, crack cocaine, glue, ecstasy, GHB, and Rohypnol. Girls reported greater use of non-medical stimulants and solvents than boys; about 1.7 percent of girls used non-medical tranquillizers and eight percent reported using non-medical stimulants.

To summarize, a high proportion of adolescent girls use alcohol, cannabis, or cigarettes. Fewer students used recreational drugs or non-prescription stimulants and tranquillizers. Given the new information on the adverse effects of ecstasy, the four percent use by students is of concern (Kalant, 2001), as is the use of Rohypnol (known as the date-rape drug).

NUTRITION AND EATING BEHAVIOURS

There is a considerable incongruity between students' eating habits and their expressed need to control their weight. The adolescent surveys reported on some healthy eating behaviours. In Grade 6, most students claimed to eat fruit or vegetables daily (77% of girls and 69% of boys) (Exhibit 22-18). By Grade 10, this percentage had fallen only somewhat (65% of girls and 62% of boys claimed eating fruit or vegetables daily). In Grade 6, most students reported eating breakfast (67% of girls and 71% of boys). However by Grade 10, a much smaller proportion of girls stated that they ate breakfast (41%).

In contrast, a significant proportion of students admitted to eating foods high in fat, calories, and salt. About 15 percent of girls in Grade 6 reported that they ate potato chips daily (Exhibit 22-18). Fewer girls than boys had soft drinks daily. In Grade 6, 34 percent of girls versus 42 percent of boys drank soft drinks each day. By Grade 10, however, 44 percent of girls and 60 percent of boys consumed soft drinks every day. About 25 percent of adolescents consumed candy or chocolate bars each day, a proportion that did not vary much from Grade 6 to Grade 10.

Exhibit 22-18. Proportion of Students Eating Fruit/Vegetables, Foods High in Fat and Sugar Daily, by Grade and Sex, Canada ,1998

Grade		Eating Fruit or Vegetables Daily (%)	Ate Breakfast Daily (%)	Ate Potato Chips Daily (%)	Had Soft Drinks Daily (%)	Ate Candy/Chocolate Bars Daily (%)
6	Girls	77	67	15	34	22
	Boys	69	71	22	42	26
8	Girls	69	47	13	45	24
	Boys	65	61	20	56	28
10	Girls	65	41	10	44	21
	Boys	62	55	14	60	25

Data source: WHO Cross-National Collaborative Study, Trends in Canadian Youth. *Health Canada. 1998*

Exhibit 22-19. Proportion of Students Who Were on a Diet, Felt Their Body Was the Right Size, or Wanted to Change Their Body, by Grade and Sex, Canada, 1998

Grade		On Diet or Felt They Needed to Lose Weight (%)	Felt Their Body Was About the Right Size (%)	Something About Their Body They Wanted to Change (%)
6	Girls	29	46	43
	Boys	19	52	31
8	Girls	41	37	69
	Boys	21	46	44
10	Girls	45	35	77
	Boys	18	41	52

Data source: WHO Cross-National Collaborative Study, Trends in Canadian Youth. *Health Canada. 1998*

Adolescent girls and boys both showed mixed feelings about their body size and need to diet. In Grade 6, 29 percent of girls and 19 percent of boys already claimed they were dieting to lose weight (Exhibit 22-19). By Grade 10, this percentage had escalated to 45 percent of girls, whereas the proportion of boys did not change. Students expressed considerable concern about their body size. In Grade 6 only about half of students felt their body was about the right size. By Grade 10 fewer students thought they were right size (35% of girls and 41% of boys). In Grade 6, 43 percent of girls and 31 percent of boys felt they wanted to change "something about their body." By Grade 10 these proportions had increased to 77 percent of girls and 52 percent of boys.

A recent survey (Trends in Canadian Youth) queried 1,739 teenaged school girls aged 12 to 18 in Toronto, Hamilton, and Ottawa about their eating behaviour (Jones, Bennett, Olmsted, Lawson, & Rodin, 2001). About one quarter of these students exhibited controlled eating behaviour (Exhibit 22-20). Among 12 year old girls, 16 percent were dieting for weight loss, a percentage that increased to 24 percent of the respondents aged 18 years. Among 12 year olds, nine percent admitted to binge eating, six percent to self induced vomiting, and 1.1 percent to using diet pills. These percentages were little changed among older girls. This survey revealed that patterns of disordered eating were evident by the age of 12 among urban school age girls. (See Chapter 6 for a discussion of eating disorders.)

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	Hallucinogens (%)	Cocaine (%)	Crack (%)	Glue (%)	Solvents (%)
Girls	9.6	3.9	1.6	2.3	6.0
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Data source: Ontario Student Drug Use Survey, Centre for Addiction and Mental Health, 1999.

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	Ecstasy (%)	GHB (Liquid Ecstasy) (%)	Rohypnol (%)	Non-Medical Tranquillizers (%)	Non- Medical Stimulants (%)
Girls	5.4	0.8	2.6	1.7	8.0
Boys	6.7	1.7	3.3	2.8	4.8

Data source: Ontario Student Drug Use Survey, Centre for Addiction and Mental Health, 1999.

More girls than boys reported smoking (girls 23.6% vs. boys 20.9%). Smoking rates have been shown to be especially higher in adolescent girls aged 15 to 17 than in boys the same age (see Chapter 20).

Small numbers of students used recreational drugs (Exhibit 22-16 and 22-17). Boys were more likely than girls to use hallucinogens, cocaine, crack cocaine, glue, ecstasy, GHB, and Rohypnol. Girls reported greater use of non-medical stimulants and solvents than boys; about 1.7 percent of girls used non-medical tranquillizers and eight percent reported using non-medical stimulants.

To summarize, a high proportion of adolescent girls use alcohol, cannabis, or cigarettes. Fewer students used recreational drugs or non-prescription stimulants and tranquillizers. Given the new information on the adverse effects of ecstasy, the four percent use by students is of concern (Kalant, 2001), as is the use of Rohypnol (known as the date-rape drug).

NUTRITION AND EATING BEHAVIOURS

There is a considerable incongruity between students' eating habits and their expressed need to control their weight. The adolescent surveys reported on some healthy eating behaviours. In Grade 6, most students claimed to eat fruit or vegetables daily (77% of girls and 69% of boys) (Exhibit 22-18). By Grade 10, this percentage had fallen only somewhat (65% of girls and 62% of boys claimed eating fruit or vegetables daily). In Grade 6, most students reported eating breakfast (67% of girls and 71% of boys). However by Grade 10, a much smaller proportion of girls stated that they ate breakfast (41%).

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6	Girls	77	67	15	34	22
	Boys	69	71	22	42	26
8	Girls	69	47	13	45	24
	Boys	65	61	20	56	28
10	Girls	65	41	10	44	21
	Boys	62	55	14	60	25

Data source WHO Cross-National Collaborative Study, Trends in Canadian Youth, *Health Canada, 1998*

Exhibit 22-19. Proportion of Students Who Were on a Diet, Felt Their Body Was the Right Size, or Wanted to Change Their Body, by Grade and Sex, Canada, 1998

Grade		On Diet or Felt They Needed to Lose Weight (%)	Felt Their Body Was About the Right Size (%)	Something About Their Body They Wanted to Change (%)
6	Girls	29	46	43
	Boys	19	52	31
8	Girls	41	37	69
	Boys	21	46	44
10	Girls	45	35	77
	Boys	18	41	52

Data source WHO Cross-National Collaborative Study, Trends in Canadian Youth, *Health Canada, 1998*

Adolescent girls and boys both showed mixed feelings about their body size and need to diet. In Grade 6, 29 percent of girls and 19 percent of boys already claimed they were dieting to lose weight (Exhibit 22-19). By Grade 10, this percentage had escalated to 45 percent of girls, whereas the proportion of boys did not change. Students expressed considerable concern about their body size. In Grade 6 only about half of students felt their body was about the right size. By Grade 10 fewer students thought they were right size (35% of girls and 41% of boys). In Grade 6, 43 percent of girls and 31 percent of boys felt they wanted to change "something about their body." By Grade 10 these proportions had increased to 77 percent of girls and 52 percent of boys.

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Exhibit 22-20. Proportion Reporting Controlled Eating Behaviour, Adolescent Girls Aged 12–18, Ontario, 2000

Age	Dieting for Weight Loss (%)	Binge Eating (%)	Self-Induced Vomiting (%)	Use of Diet Pills (%)	Use of Laxatives (%)	Use of Diuretics (%)
12	16	9	6	1.1	0.4	0.4
14	24	16	6	2.8	0	0.3
16	24	15	10	3.1	1.5	0.5
18	24	19	7	1.1	2.2	0.5

Data source: Jones et al., 2001

VIOLENCE AND BULLYING

As noted in Chapter 8, younger women show the highest incidence of victimization among women. Violence to adolescents, sexual assault, or dating violence is common. A survey of adolescents in Alberta found that 23.6 percent of girls told of sexual touching or assault (Bagley, Bolitho, & Bertrand, 1995) (Exhibit 22-21). A survey of Canadian undergraduates at 16 campuses across Canada found rates of sexual assault to young women of 5.7 percent (Centre for Addiction and Mental Health, 1998).

Surveys in the United States found that 12 percent of adolescents had been subjected to physical assault and 29 percent to psychological abuse (Halpern, Oslak, Young, Martin, & Kupper, 2001). The Massachusetts Youth Risk Behavior Survey of 1999 found that 8.9 percent of girls told of physical violence and 3.8 percent of girls told of sexual violence from dating partners (Silverman, Raj, Mucci, & Hathaway, 2001).

In another US survey of school-aged children and bullying, 36.2 percent of girls and 46.7 percent of boys reported being bullied. The form of bullying varied by sex. Girls were more likely to be subjected to sexual comments or gestures or were belittled about their looks or speech.

SUMMARY

- Girls have more functional health problems than boys and are more likely to rate their health as fair or poor.
- Girls are much less likely than boys to exercise.
- Boys are more likely to watch television or play computer games than girls.
- Boys are more likely to be injured than girls. Girls exhibit more preventive behaviour aimed at reducing injuries, such as wearing seat belts.
- Girls are more likely than boys to be unhappy, depressed, or report low self-esteem.
- More boys admit to substance abuse than girls, but alcohol, cigarettes, and marijuana are being used by significant numbers of students.
- Girls are more likely to exhibit healthy eating behaviours than boys; however, 45 percent of Grade 10 girls were on a diet or felt they needed to lose weight, and only 35 percent felt their body was about the right size.
- Girls are more likely than boys to be subjected to sexual abuse and dating sexual violence; girls who report being bullied are subjected to sexual comments and gestures or belittled about their appearance or speech.

Exhibit 22-21. Violence and Victimization Studies among Adolescents: Canada and United States

Survey group	Activity surveyed	Percent	Percent	Reference
Alberta: Survey of 2,112 adolescents in Alberta	Sexual touching or assault	Girls: 23.6	Boys: 10.0	Bagley, et al., 1995
Canada: Survey of 7,800 undergraduates at 16 universities	Sexual assault in previous 12 months	Women: 5.7	Men: 2.2	Centre for Addiction and Mental Health, 1998
	Physical assault in past 12 months	Women: 4.5	Men: 6.7	
United States: National Longitudinal Study of Adolescent Health, n = 7,493 students, Grades 7–12	Physical victimization	Girls: 12	Boys 12	Halpern et al., 2001
	Psychological victimization	Girls: 29	Boys 28	
Massachusetts: Youth Risk Behavior Survey 1999, Grades 9–12, 2,186 girls	Physical violence from dating partner	Girls: 8.9	–	Silverman et al., 2001
	Sexual violence from dating partner	Girls: 3.8	–	
	Physical and sexual violence	Girls: 5.3	–	
US Health behavior of school-aged children, Grades 6–10, n = 15,686 students	Reported being bullied	Girls: 36.2% of sample	Boys: 46.7% of sample	Nansel et al., 2001
	Subjects of sexual comments or gestures	Girls: 57.2% among those bullied	Boys: 47.3% among those bullied	
	Belittled about looks or speech	Girls: 65.3% among those bullied	Boys: 58.4% among those bullied	

Exhibit 22-20. Proportion Reporting Controlled Eating Behaviour, Adolescent Girls Aged 12–18, Ontario, 2000

Age	Dieting for Weight Loss (%)	Binge Eating (%)	Self-Induced Vomiting (%)	Use of Diet Pills (%)	Use of Laxatives (%)	Use of Diuretics (%)
12	16	9	6	1.1	0.4	0.4
14	24	16	6	2.8	0	0.3
16	24	15	10	3.1	1.5	0.5
18	24	19	7	1.1	2.2	0.5

Data source: Jones et al., 2001

VIOLENCE AND BULLYING

As noted in Chapter 8, younger women show the highest incidence of victimization among women. Violence to adolescents, sexual assault, or dating violence is common. A survey of adolescents in Alberta found that 23.6 percent of girls told of sexual touching or assault (Bagley, Bolitho, & Bertrand, 1995) (Exhibit 22-21). A survey of Canadian undergraduates at 16 campuses across Canada found rates of sexual assault to young women of 5.7 percent (Centre for Addiction and Mental Health, 1998).

Surveys in the United States found that 12 percent of adolescents had been subjected to physical assault and 29 percent to psychological abuse (Halpern, Oslak, Young, Martin, & Kupper, 2001). The Massachusetts Youth Risk Behavior Survey of 1999 found that 8.9 percent of girls told of physical violence and 3.8 percent of girls told of sexual violence from dating partners (Silverman, Raj, Mucci, & Hathaway, 2001).

In another US survey of school-aged children and bullying, 36.2 percent of girls and 46.7 percent of boys reported being bullied. The form of bullying varied by sex. Girls were more likely to be subjected to sexual comments or gestures or were belittled about their looks or speech.

SUMMARY

- Girls have more functional health problems than boys and are more likely to rate their health as fair or poor.
- Girls are much less likely than boys to exercise.
- Boys are more likely to watch television or play computer games than girls.
- Boys are more likely to be injured than girls. Girls exhibit more preventive behaviour aimed at reducing injuries, such as wearing seat belts.
- Girls are more likely than boys to be unhappy, depressed, or report low self-esteem.
- More boys admit to substance abuse than girls, but alcohol, cigarettes, and marijuana are being used by significant numbers of students.
- Girls are more likely to exhibit healthy eating behaviours than boys; however, 45 percent of Grade 10 girls were on a diet or felt they needed to lose weight, and only 35 percent felt their body was about the right size.
- Girls are more likely than boys to be subjected to sexual abuse and dating sexual violence; girls who report being bullied are subjected to sexual comments and gestures or belittled about their appearance or speech.

Exhibit 22-21. Violence and Victimization Studies among Adolescents: Canada and United States

Survey group	Activity surveyed	Percent	Percent	Reference
Alberta: Survey of 2,112 adolescents in Alberta	Sexual touching or assault	Girls: 23.6	Boys: 10.0	Bagley, et al., 1995
Canada: Survey of 7,800 undergraduates at 16 universities	Sexual assault in previous 12 months	Women: 5.7	Men: 2.2	Centre for Addiction and Mental Health, 1998
	Physical assault in past 12 months	Women: 4.5	Men: 6.7	
United States: National Longitudinal Study of Adolescent Health, n = 7,493 students, Grades 7–12	Physical victimization	Girls: 12	Boys 12	Halpern et al., 2001
	Psychological victimization	Girls: 29	Boys 28	
Massachusetts: Youth Risk Behavior Survey 1999, Grades 9–12, 2,186 girls	Physical violence from dating partner	Girls: 8.9	–	Silverman et al., 2001
	Sexual violence from dating partner	Girls: 3.8	–	
	Physical and sexual violence	Girls: 5.3	–	
US: Health behavior of school-aged children, Grades 6–10, n = 15,686 students	Reported being bullied	Girls: 36.2% of sample	Boys: 46.7% of sample	Nansel et al., 2001
	Subjects of sexual comments or gestures	Girls: 57.2% among those bullied	Boys: 47.3% among those bullied	
	Belittled about looks or speech	Girls: 65.3% among those bullied	Boys: 58.4% among those bullied	

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CHAPTER 23 – LONE MOTHERS

ENZA GUCCIARDI

OVERVIEW

Sole-parent households typically experience more disadvantaged economic and social conditions than two-parent families. Poverty, unemployment, lack of education, poor living and working conditions, and lack of social support from family and friends are some of the disadvantages that may have spin-off effects on the well-being of people undergoing a transition to lone-parenthood. The fact that a large and growing proportion of the population consists of lone-parent families headed by women justifies a closer examination of this type of family structure and its associated health status.

Becoming a lone parent, through divorce, separation, widowhood, or having a baby alone, is a stressful event that can have temporary or lasting effects on health. On average, lone mothers have poorer mental and physical health and use more health care than their partnered counterparts. The poor socioeconomic conditions faced by lone mothers appear to be the strongest predictor of the detrimental impact on the health of these women and their children. Although lone mothers are not a homogenous group, a large proportion live on low incomes, are unable to work because they cannot obtain affordable childcare, or are employed in low-pay, low-status jobs owing to their lack of skills or education. Interventions should focus on the various social determinants of family health. Further research is required to assess those variables that mediate or moderate the relationship between lone parenthood and health.

METHODS

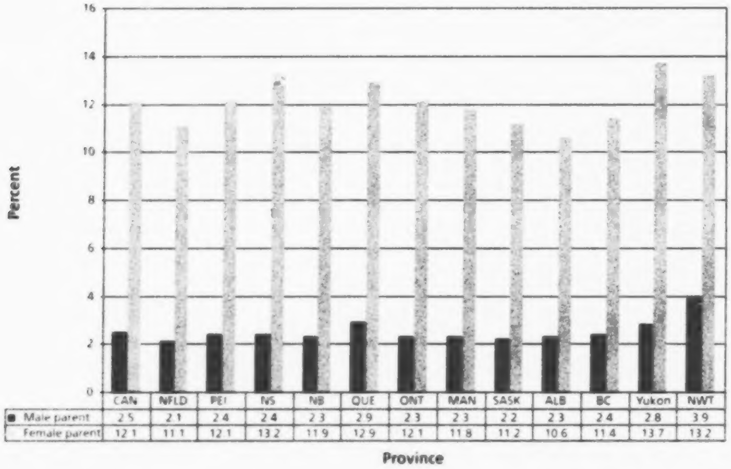
A literature review was conducted using Ontario and Canadian data. British and American data were also used to supplement or provide information when Canadian content was not available. Information on the trends and socioeconomic status of lone mothers in Ontario and Canada was collected for the 1996 Canada Census by Statistics Canada. According to Statistics Canada, a "lone parent" refers to a mother or a father with no spouse or common-law partner present, living in a dwelling with one or more never-married sons and/or daughters.

INTERPRETIVE CAUTIONS

The absence of a standard definition for a "lone parent" makes comparisons across studies and countries problematic. Distinguishing the living arrangements of unmarried cohabiting couples with children from those of lone-parent families with children is critical to a proper identification of lone parents. The term "lone parent" is synonymous with the term "single parent," although statistical surveys sometimes use "single" to denote "never married." To avoid confusion it is critical to note that the term "lone parent" may include persons who were never married, or who are separated, divorced, not currently living with a legal or common law spouse, or widowed with a child or children. Depending upon the operative definition of "lone parent," the age of the dependent child or children may also vary. It is also important to note, when reviewing the literature and analyzing the census data, that the availability of details regarding shared parental custody of the child or children is negligible. Were such information available, it would provide a better indication of the health determinants of the child or children.

BACKGROUND

Exhibit 23-1. Percent of Lone Parents by Sex and Province in Canada, 1996



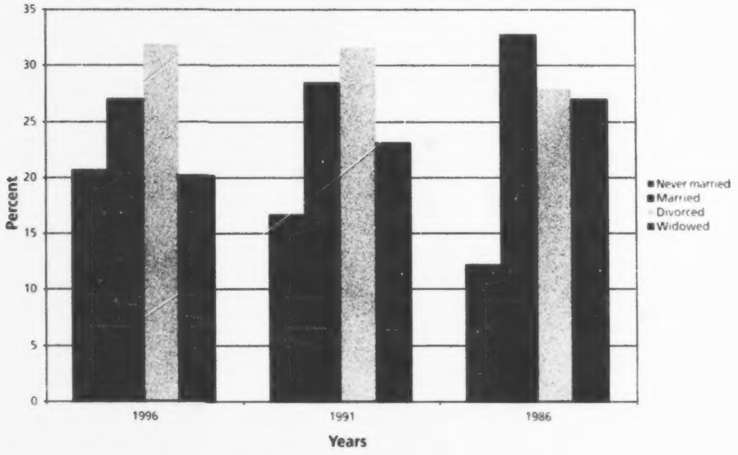
	CAN	NFLD	PEI	NS	NB	QUE	ONT	MAN	SASK	ALB	BC	Yukon	NWT
■ Male parent	2.5	2.1	2.4	2.4	2.3	2.9	2.3	2.3	2.2	2.3	2.4	2.8	3.9
Female parent	12.1	11.1	12.1	13.2	11.9	12.9	12.1	11.8	11.2	10.6	11.4	13.7	13.2

Data source Statistics Canada, Census 1996

Lone parenthood has become increasingly common in most industrialized countries (Ermisch, 1991) and has been one of Canada's most significant recent social trends. Lone mothers headed five in every six (84 percent) of lone-parent families in Canada (Statistics Canada, 1996a; Statistics Canada, 1996b). In Ontario, 12.1 percent of families are headed by lone mothers, whereas 2.3 percent are headed by lone fathers, a rate similar to the overall Canadian rate (Exhibit 23-1). (For rates by Ontario health regions, see Chapter 1, on demographics.) Across Canada, the Yukon and the Northwest Territories have the highest percentage of lone-mother families, while Alberta has the lowest rate. Between 1991 and 1996, the proportion of lone-mother families in Ontario increased at a slightly faster pace (24.7 percent) than the proportion of those headed by lone fathers (15.5 percent) (Statistics Canada, 1996a; Statistics Canada, 1996b), as it is still more likely for mothers to obtain custody of their children. In 1990 Canadian mothers were awarded custody in 73.3 percent of cases, fathers in 12.2 percent of cases, and joint custody in 14 percent of cases (Barr, 2001).

Data from the 1994/95 National Population Health Survey (NPHS), suggest that lone mothers tend to be younger than married mothers and to have less education, lower incomes, and higher rates of unemployment (Cairney, Thorpe, Rietschlin, & Avison, 1999; Perez & Beaudet, 1999). According to the 1991 Ontario Health Survey (OHS), similar findings were reported in Ontario, where lone mothers were more likely to be 25 years of age or under and have lower income than mothers in two-parent families (Lipman, Boyle, Dooley, & Offord, 1998).

Exhibit 23-2. Marital Status of Lone Mothers in Ontario across Census Years



Data source: Statistics Canada, Census 1996.

In 1996, 21 percent of all lone mothers in Ontario were single, 32 percent were divorced, 27 percent were separated, and 20 percent were widowed (Exhibit 23-2). While the largest proportion of lone mothers are either divorced or separated, a growing number of lone mothers are never-married and raising children on their own (12% in 1986, 17% in 1991, and 21% in 1996). Although lone-parent families are a legitimate and familiar family structure, lone parenthood is usually a transitional state rather than a static status in Canada, as nearly 66 percent of all first incidents of lone motherhood end in marriage or a common-law union (Desrosiers, Le Bourdais, & Peron, 1993).

The main reason for public concern about lone-mother families (especially those with young children) stems from the high probability that this type of family will be poor. Poverty may result in the mother's dependence on social assistance and cause societal stigma, lowered standards of living, and reduced opportunities for education and employment of women and their children. Role overload, stress, and depression are also frequent problems of lone mothers. Given these circumstances of many lone mothers, it is not surprising that studies find that a high proportion of them are in poor physical and mental health.

FINDINGS AND DISCUSSIONS

HEALTH RISK

Married people have been shown to live longer, report better physical and psychosocial health, adopt healthier lifestyles, and use fewer health services than non-married people (Elstad, 1996; Macintyre, 1992; Morgan, 1980; Trovato, 1998; Wyke & Ford, 1992). The explanations offered for these health effects are divided primarily between theories of social causation and health selection. Social causation suggests that the lack of emotional and social support from a confiding intimate relationship, psychological stress, social stigma, financial difficulties, and the lack of material resources associated with lone parenthood have adverse health consequences (Benzeval, 1998). For previously married people, the stress suffered during marital breakdown may exacerbate both short- and long-term health consequences (Benzeval, 1998). The health-selection argument suggests that unhealthy people are less likely to get married, stay married, or remarry. Most studies have focused on analyzing the processes of social causation (Benzeval, 1998). Studies that examine health-selection mechanisms are rare, probably because of the scarcity of the longitudinal data required for this kind of research (Weitoft, Haglund, & Rosen, 2000).

Nevertheless, lone motherhood may not necessarily be a negative experience. For many, lone motherhood is an escape from a stressful or abusive relationship, and may actually improve the health outcomes of women and their children (Weitoft, Haglund, & Rosen, 2000). In fact, an analysis of the 1993 Violence Against Women Survey (VAWS) found that in Canada 53 percent of the women whose first marriages had dissolved reported physical abuse by their former partner (Kingston-Riechers, 1998). Similarly, in the United Kingdom, 20 percent of lone parents reported violence and 15 percent cited alcoholism and drug abuse as major factors in the breakdown of the relationship with their partner (Bradshaw & Millar, 1991). However, continuing concern in Ontario focuses on the fact that lone mothers with children under the age of 25 who have a former partner are at very high risk of either non-severe or severe violence (39.9 percent and 29 percent respectively) in comparison to married women with children (5.2 percent and 2.3 percent respectively) (see Chapter 8).

HEALTH STATUS

Both the 1994/95 and 1996/97 NPHS found that lone mothers reported worse health status than did mothers in two-parent families (Perez & Beaudet, 1999). Lone mothers scored lower on self-perceived health and happiness and substantially higher on distress scales. They also experienced higher rates of chronic illness, more disability days, and greater activity restrictions than mothers in two-parent families; and they were three times more likely to consult a health-care practitioner for mental and emotional health reasons (Perez & Beaudet., 1999).

The health status of long-term lone mothers who remain unpartnered is harder to predict. Over time, lone mothers may learn to cope with their circumstances, their health may improve, and their use of health services may decrease. Some studies have reported that after a two- to three-year adjustment period, the health of many lone mothers recover to levels comparable with that of mothers in two-parent families (Kazak & Linney, 1983). But it can be argued that enduring the difficult circumstances typical of lone parenthood for long periods may threaten health and increase the use of health services. Using NPHS longitudinal data between 1994/95 and 1996/97, the self-perceived health of long-term lone mothers in Canada did not improve. Nor was their health significantly different from that of women who had recently become lone parents (Perez & Beaudet, 1999). Furthermore, mental or emotional health was worse for long-term lone mothers than for mothers in two-parent families (Perez & Beaudet, 1999). These findings suggest that prolonged exposure to the circumstances typical of lone parenthood may well undermine health status (Perez & Beaudet, 1999).

MENTAL HEALTH STATUS

Lone mothers in Ontario suffer more from mental health problems than those living in two-parent families (Byrne et al., 1998; Cairney et al., 1999; Lipman, Offord, & Boyle, 1997; Walters, 1993). According to the 1994 NPHS, lone mothers have consistently higher rates of depression than partnered mothers within all regions and provinces of Canada (Cairney et al., 1999). Similarly, a study in a stratified random sample of 356 women in Hamilton, Ontario, found that lone mothers were much more likely than other women to report stress, anxiety and depression (Walters, 1993). From data in the 1990 OHS, Mental Health Supplement, it appears that lone mother status is a strong predictor of mental health morbidity and increased use of mental health services (Lipman, Offord, & Boyle, 1997). Lone mothers were more likely than other mothers to have an affective disorder and to be dissatisfied with multiple areas of their lives (Lipman, Offord, & Boyle, 1997). The risk of mental health problems was especially pronounced among poor lone mothers (Lipman, Offord, & Boyle, 1997). The prevalence of depressive disorder among the 760 lone parents who applied for social assistance in two regions in southwestern Ontario was 45.4 percent (Byrne et al., 1998). It is important to note that some women may have had mental health problems before becoming lone mothers (which may have contributed to their lone status) or their adverse mental health effects may have been precipitated by the change from a two-parent to a lone-parent family (Lipman, Offord, & Boyle, 1997).

CHILDREN OF LONE MOTHERS

In 1996 almost one in every five Canadian children lived with a lone parent compared with one in six in 1991 (Statistics Canada, 1997). Between 1991 and 1996 the number of children living with a lone mother increased at a much faster pace (20 percent) than did the number of children living with a lone father (11 percent) (Statistics Canada, 1997). Children living with a lone parent tend to be at greater risk for physical and mental health than those from two-parent families.

Accidents and injury

International reports note a relationship between single-parenthood and the risk of childhood injuries (Fleming & Charlton, 1998; McCormick, Shapiro, & Starfield, 1981; Roberts, 1994; Wadsworth, 1983), which may be attributed to poverty, poor housing conditions, and social isolation (Fleming & Charlton, 1998; Johnson, Howell, & Molloy, 1993; Olds, Henderson, Chamberlin, & Tatelbaum, 1986; Roberts, Norton, Jackson, Dunn, & Hassall, 1995; Roberts & Pless, 1995). In Canada, Larson and Pless examined risk factors for injury in a cohort of children followed from birth to the age of three years and noted that lone parenthood was the strongest sociodemographic predictor of injury (Larson & Pless, 1988). Data used from the 1995 National Longitudinal Survey of Children and Youth (NLSCY) reported a link between lone-parenting and an elevated risk of injuries, but only for boys (Kohen, Soubhi, & Raina, 2000).

The provision of daycare might reduce childhood injury (McCormick, Shapiro, & Starfield, 1981), as such centres usually provide a safe environment for children who would otherwise be more exposed to the everyday hazards of poverty (Roberts & Pless, 1995). To date, three studies have examined the relative safety of daycare and home care. Two studies conducted in the United States found lower injury rates in daycare centres (Gunn, Pinsky, Sacks, & Schonberger, 1991; Rivara, DiGuisseppi, Thompson, & Calonge, 1989), while one study in Sweden found the opposite (Sellstrom, Bremberg, & Chang, 1994).

Nutrition

Owing to the disadvantaged socioeconomic circumstances of many lone parent households, it is hardly surprising to find that one third (32 percent) of all lone-mother households were short of food and that 28 percent reported that their diet was compromised (Che & Chen, 2001). Food deprivation and depleted diets in homes headed by lone fathers were less prevalent (17 percent and 13 percent) (Che & Chen, 2001). Food deprivation is strongly correlated with poor nutrition (Cristofar & Basiotis, 1992; Kendall, Olson, & Frongillo, 1996; Rose & Oliveira, 1997;

Tarasuk & Beaton, 1999). Poor nutrition during infancy and childhood is known to be associated with growth retardation and impaired psychomotor development (Levitsky & Strupp, 1997); adverse intellectual, social, and emotional development (Brown & Pollitt, 1996; Kleinman et al., 1998); decreased ability to concentrate, and poor school performance (Wachs, 1995). According to the NLSCY, children of single-parent families were overrepresented among those experiencing these learning deficits (McIntyre, Connor, & Warren, 2000).

Children's development

Although children with lone parents are at greater risk of poor developmental scores than their counterparts in two-parent households, the majority of lone-parent children nonetheless grow up healthy (Lipman, Offord, & Dooley, 1996; Ross, Roberts, & Scott, 1998a). Furthermore, not all lone-parent families are economically disadvantaged and not all require social assistance. It is crucial not to stigmatize lone parenthood or lone motherhood as a family structure (Ross, Roberts, & Scott, 1998a). The literature reviewed indicates that each lone-mother family is differently affected, depending on the age, education, and marital status of the mother; the age of her child or children; and her coping skills, social supports networks, work environment, and financial situation.

Analysis of the 1994/95 NLSCY has suggested that Canadian and Ontario children from lone-parent families are at increased risk for a variety of psychosocial problems such as psychiatric disorders, social problems, and academic difficulties. For many, these difficulties continue into adolescence, persist into early adulthood (Lipman et al., 1998) and may progressively worsen (Ross, Roberts, & Scott, 1998a). Also, using the 1994/95 NLSCY, Ross, Roberts, and Scott (1998b) reported that lone-parent children seem to experience a greater degree of behavioural problems such as hyperactivity, physical aggression, and emotional disorders than the general population of Canadian children. They also scored lower on relationship measures with friends or parents. Educational outcomes such as poor receptive language skills and having to repeat a grade and are more common among children of lone parents than among most children (Ross, Roberts, & Scott, 1998b).

Characteristics common to both lone-parent and two-parent families which may influence developmental problems in Canadian children include low economic status, low levels of parental education, parental psychiatric status, poor parenting skills, adverse family function, and lack of social support (Byrne et al., 1998; Curtis, Dooley, Lipman, & Feeny, 2001; Lipman et al., 1998; Lipman & Offord, 1994). Other risk factors attributed to lone-parent families may include a disruptive cause of lone parenthood, the amount of time spent in a lone-parent household, race, the availability of community resources, and the extent of social networks (Ross, Roberts, & Scott, 1998b).

HEALTH DETERMINANTS

A substantial proportion of lone mothers experience socioeconomic disadvantages because they are the sole wage earners in the household. Low income, heavy reliance on social assistance, and low participation in the labour force all contribute to the disadvantaged position of this group relative to two-parent families. Many single mothers shoulder multiple burdens as they assume all or most of the responsibility for their children's care. Many live in poverty while managing to hold down a job (Avison, 1997). Low socioeconomic status has been consistently linked to poor health among Canadians (Millar, 1995; Mustard & Frohlich, 1995; Roberge, Berthelot, & Wolfson, 1995; Roos & Mustard, 1997). Socioeconomically underprivileged individuals are more likely than those who are better off to live in low-quality housing (Hwang et al., 1999). A longitudinal analysis of the 1982 and 1986 Ontario Children's Health study reported that low income is an important contributor to poor child health and development (Curtis et al., 2001).

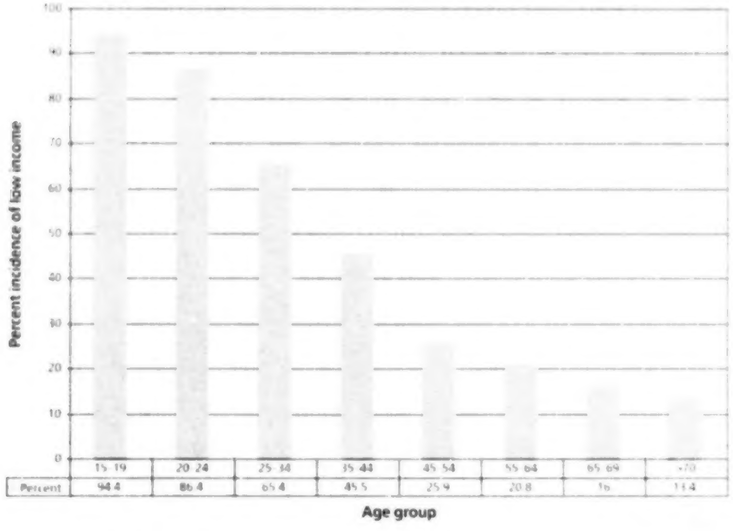
INCOME AND POVERTY

In Canada, according to the poverty profile (based on Statistics Canada low-income cutoffs) from the National Council of Welfare (1998), the group with the highest poverty rate among all family types was composed of lone mothers under the age of 65 caring for children under 18 (National Council of Welfare, 1998). The incidence of child poverty among children in lone-mother families in Ontario for 1996 was 65.9 percent, similar to the incidence in the rest of Canada (65.0 percent). These figures have increased slightly from 1990 to 1996 (61.0 percent and 62.9 percent) (Centre for International Statistics at the Canadian Council on Social Development, 2001).

In Ontario, in 1995, 42.9 percent of lone-mother families had low incomes, compared to 21.8 percent of lone-father families and 17.7 percent among husband-and-wife families. Low incomes are even more common among lone mothers with younger children. The incidence of low income was 65.6 percent among lone mothers with a child or children under six years of age, 42.6 percent with a child or children six to 17 years of age, and 70.5 percent among those with children in both these age groups (Statistics Canada, 1996a).

There are also significant differences in income between younger and older lone mothers. Low incomes are far more frequent among young lone mothers but steadily decrease as maternal age increases (Exhibit 23-3). Over the last 15 years lone mothers in Canada over the age of 34 have been earning higher wages, getting better jobs, and receiving more pay, and have had a falling rate of poverty and lowered need for social assistance (Dooley, 1995). On the other hand, young lone mothers reported stagnant wages, a declining job market, and low earnings with poverty rates remaining unchanged and a growing reliance on social assistance (Dooley, 1995). Accordingly, it is the young, low-income lone mothers with young children who are at greatest risk of financial difficulties.

Exhibit 23-3. Percent Incidence of Low Income among Lone Mothers in Ontario, by Age Groups



Data source: Statistics Canada, Census 1996

EMPLOYMENT

Trying to overcome poverty by finding work in the labour force is difficult for lone mothers, as they have a lower earning capacity than lone fathers, owing to differences in education, training, skills, and work experiences (Duskin, 1990; Statistics Canada, 1996a). Yet paid work can relieve financial stress, increase family income, promote self-sufficiency, and increase self-esteem and confidence, all of which can improve psychological and physical health. A qualitative study of employed lone mothers in Vancouver, Toronto, and Saint John, New Brunswick, showed that participation in the work force enhanced feelings of self-worth and competence, and helped free mothers from the need for social assistance and its accompanying stigma (Mason, 2000). On the other hand, employed mothers also expressed guilt feelings about leaving their children and concern about having less time for the family (Mason, 2000).

In 1995, 62 percent of lone mothers were employed or seeking employment in Ontario (Statistics Canada, 1996a). The employment rate for lone mothers increases steadily with increasing maternal age. Among lone mothers under 25 years of age, 47 percent of those with children younger than age six were employed or seeking employment; 61 percent of those with children aged six to 18, and 76 percent of those with children older than 18 were employed or seeking employment in Ontario (Statistics Canada, 1996a). The marital status of lone mothers is also correlated with employment status, with the result that never-married lone mothers are considerably less likely to be employed than other lone mothers (Statistics Canada, 1996c). These figures clearly confirm that the age of the child or children is a critical consideration in determining whether or not a mother is able to seek paid employment. Lone mothers with children under the age of three years experience more guilt and more difficulty in obtaining employment than mothers with older children (Mason, 2000).

CHILD CARE

On January 1, 1998, Ontario Works imposed a mandatory employment requirement on all people receiving social assistance, which affected all lone mothers on Welfare and Family Benefits across the province. Unfortunately, there was no corresponding government obligation to provide good quality child care (Ontario Social Safety NetWork, 1998). The shortage of quality subsidized child-care facilities and extensive waiting lists remain serious concerns for lone mothers in Ontario (Ontario Social Safety NetWork, 1998), since these facilities are central to a mother's ability to obtain and sustain paid employment.

It seems unlikely that Ontario will provide the number of child-care spaces needed for all lone mothers who will be entering the workforce (Ontario Social Safety NetWork, 1998). The current waiting lists for subsidized daycare in Metropolitan Toronto alone stand at 18,000 children, including the 8,500 children of social assistance recipients, according to Metro Community Services and the Ontario Coalition for Better Child Care (Ontario Social Safety NetWork, 1998). Evidence from a randomized controlled study shows that the provision of daycare may be an effective antipoverty policy for lone-parent families and the children who need it (Brooks-Gunn, McCormick, Shapiro, Benasich, & Black, 1994).

WORKING LONE MOTHERS

Lone mothers are nevertheless expected to work despite a lack of subsidized child care, and despite their relatively weak position in the labour market and their frequent lack of social support networks. According to the 1994/95 NPHS, the proportion of full-time working women did not differ markedly from that of lone mothers or married mothers (Perez & Beaudet, 1999). However, using the 1988 Canadian National Child Care Survey (CNCCS), Cleveland and Hyatt reported that four out of five employed lone mothers with preschool children worked full-time as compared to seven out of ten married mothers (Cleveland & Hyatt, 1996). Lone working mothers attempt to fulfil two roles, that of the nurturer "good mother" and that of the provider "good worker" (Semchuk & Eakin, 1989). Fulfilling multiple roles may lead to role overload, increased stress, and a variety of mental health problems. For instance, studies among lone mothers in full-time employment have reported worse psychosocial health problems than those experienced by partnered mothers who work full-time (Macran, Clarke, & Joshi, 1996; Sogaard, Kritz-Silverstein, & Wingard, 1994).

The ability of a lone mother to manage both roles without increasing her risk of mental health problems (strain, stress, and depression) depends on several factors. Among them are personal resilience, health, and coping styles; the availability of social support (especially help with child care); access to and the characteristics of social networks (particularly whether or not the mother lives near family or friends); childcare arrangements (daycare, nannies, or babysitters); income, and factors within the work environment (e.g., a flexible job situation, a supervisor's empathy, and the kind of work) (Semchuk & Eakin, 1989).

INTERNATIONAL

Other countries also report an increasing trend toward single-parent families, especially lone mothers in the United States (Fuller, 1997), Great Britain (Haskey, 1998), Germany, the Netherlands, Norway, and Sweden (Ermisch, 1991). However, there are differences between countries and their individual social policies that are likely to affect the socioeconomic and health status of lone mothers and their children. For example, a comparison of Canadian and Norwegian social policies revealed that Norway offers much more extensive income support for families with children, particularly for lone-parent families; income transfers are generally available for all families with children and for all lone-parent families with children regardless of income. Transfers in Norway may thus not have the same kind of stigma as those in Canada's welfare system. Norway offers more than Canada in the way of support for parents working outside the home (e.g., maternity leave, parental leave, days off for sick children, publicly supported daycare) (Curtis & Phipps, 2001). However, these benefits come at the cost of heavier taxation.

GLOSSARY

Marital Status defined by Statistics Canada:

Married (including common-law) — Persons whose husband or wife is living, unless the couple is separated or a divorce has been obtained. Persons living common law are considered as "Married."

Separated — Persons currently married, but who are no longer living with their spouse (for any reason other than illness or work) and have not obtained a divorce.

Divorced — Persons who have obtained a legal divorce and who have not remarried.

Widowed — Persons who have lost their spouse through death and who have not remarried.

Never married (single) — Persons who have never married (including all persons less than 15 years of age) and persons whose marriage has been annulled and who have not remarried.

Incidence of low income — The proportion or percentage of economic families or unattached individuals in a given classification below the low-income cut-offs. The definition of low-income cut-offs can be found on Statistics Canada's website.

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CHAPTER 24 – POSTMENOPAUSAL AND SENIOR WOMEN

RUHEE CHAUDHRY AND ANGELA M. CHEUNG

OVERVIEW

Postmenopausal and senior women represent one of the fastest growing segments of the Canadian population. In this chapter we discuss some of the issues pertinent to the health and well-being of postmenopausal and senior women in Canada.

The life expectancy of women in Canada is now 81 years. As a result, women can expect to live, on average, a third of their lives in postmenopausal years. Disease in later life is more often chronic than acute. The two most frequent causes of mortality among postmenopausal and senior women are cardiovascular disease and cancer. Lung cancer, breast cancer, and colorectal cancer account for the greatest portion of cancer deaths. The two highest causes of morbidity and disability are arthritis and osteoporotic fractures. One in four senior women living in the community has a long-term disability or handicap and one in four reports experiencing chronic pain that limits her activities.

Overall, postmenopausal and senior women are experiencing better health than in the past and the majority of postmenopausal and senior women living in the community consider themselves to be in good health, even in the presence of chronic conditions. There are inequities, however, and some groups of women experience poor health or functional status. Women in lower socioeconomic groups have higher rates of mortality, chronic illness, disability, and institutionalization. As in other age groups, postmenopausal and senior women have lower incomes than their male counterparts. One-quarter of senior women — and close to half of all single senior women — survive on incomes below Statistics Canada's low-income threshold.

BACKGROUND

Early last century, most women in Canada did not live to age 50. As women are now living longer, both the number of postmenopausal women and the number of years women live after menopause are increasing. The life expectancy at birth for a woman in 1960 was 74 years, whereas the life expectancy for a woman born in 1990 was 81 years. In 1996 a woman at age 65 could expect to live, on average, another 20 years.

Women live approximately one-third of their lives in postmenopausal years. The average age of natural menopause in Canadian women is about 51 years. Menopause is defined as the cessation of menstrual periods for more than 12 months and is associated with a drop in estrogen to negligible levels. It is an event that takes place over a period of years.

The major causes of morbidity and mortality in postmenopausal and senior women are cardiovascular disease, arthritis, osteoporotic fractures, cancers (of the breast, lung, and colon), diabetes, dementia, and stroke. Hormonal changes have an impact on a number of these conditions. Over the past decade there has been interest in the use of hormone replacement therapy for prevention of chronic diseases such as cardiovascular disease and osteoporosis.

In this chapter, we highlight some of the issues pertinent to the health and well-being of postmenopausal and senior women. We also discuss the current understanding of hormone replacement therapy, and ways in which the use of hormone replacement therapy may or may not affect the health status of these women.

METHODS

Sociodemographic data and descriptive data on health status were obtained from national and provincial surveys, including the 1996 Census of Canada, the 1994/95, 1996/97, and 1998/99 National Population Health Surveys (NPHS) (cross-sectional sample of household residents), the 1996 Ontario Health Survey, and the Canadian Study of Health and Aging. The National Population Health Survey has both an institutional and a household component. Unless otherwise stated, prevalence data in this chapter are based on the community-dwelling population. Where available, data from the institutional component are also presented.

Review of the literature was conducted, within specific health topics, with emphasis on studies of Canadian populations. American and British studies were used for comparison or in cases where Canadian studies were not available.

INTERPRETIVE CAUTIONS

People living in institutions or long-term care facilities and on reserves are often excluded from population-based surveys. As well, immigrants who do not speak English or French may be excluded from surveys. This is the case with the Ontario Health Survey.

Prevalence rates for specific conditions may vary between studies as a result of definitions used or methodological differences. Prevalence data reported from the NPHS are based on self-report.

FINDINGS

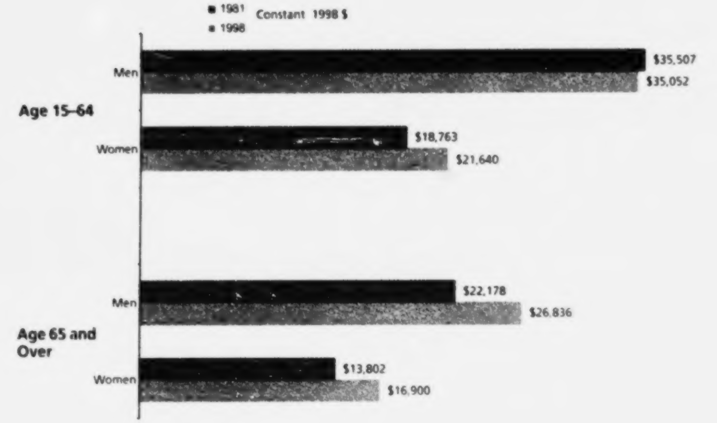
SOCIODEMOGRAPHICS

There are an estimated 4.5 million postmenopausal women in Canada, of whom the majority are seniors. Senior women (aged 65 and over) represent one of the fastest growing segments of the female population in Canada (see Chapter 1). In 1996 senior women accounted for close to 58 percent of the senior population and 14 percent of the female population. In the same year immigrants made up 27 percent of the senior population, most having arrived in Canada before 1961 (Health Canada, 2000).

Senior women are more likely than senior men to live alone, and the proportion of senior women living alone increases with age. In 1996, 58 percent of women aged 75 to 84 and 80 percent of women aged 85 and over were widowed (Health Canada, 2000). In the same year, 50 percent of women aged 75–84 and 58 percent of those aged 85 and older lived alone. Senior women are also more likely than senior men to be living in institutions and again the likelihood increases with age. In 1996, ten percent of women aged 75–84 lived in institutions, compared to seven percent of men in the same age group, and 38 percent of women aged 85 and older lived in institutions, compared to 24 percent of their male counterparts (Health Canada, 2000).

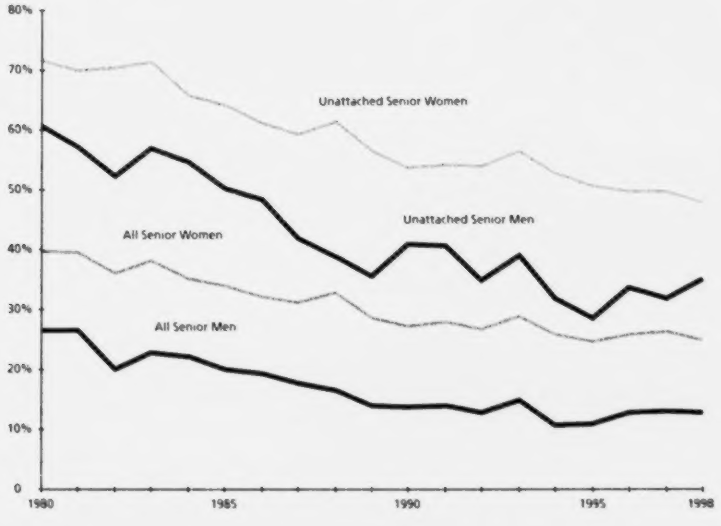
The socioeconomic conditions in which women live affect their health status. Individuals with lower socioeconomic status have shorter life expectancy and higher mortality rates, and are more likely to have health-related problems. Those with low incomes also have increased odds of institutionalization (Mustard, Finlayson, Derksen, & Berthelot, 1999; Anonymous, 1999). As is true in other age groups, senior women have lower incomes than senior men (Exhibit 24-1). Senior women are more likely than younger women to have low incomes, whereas the reverse is true for men. Those living alone generally live on lower incomes than those who are married and are more likely to fall below the low-income threshold, as defined by Statistics Canada. In 1997 close to half of all single senior women lived in low-income situations (Exhibit 24-2).

Exhibit 24-1. Average Income of Individuals in Canada, 1981 and 1998



Data source: Statistics Canada

Exhibit 24-2. Percentage of Senior Canadian Men and Women with Low Income, 1980–1998



Data source: Statistics Canada

Exhibit 24-3. Self-Reported Health Conditions among Community-Dwelling Canadian Women by Age Group, Canada Excluding Territories, 1994/95 and 1998/99

	1994/95					1998/99				
Condition	45–54 %	55–64 %	65–74 %	75+ %	Total (Women)	45–54 %	55–64 %	65–74 %	75+ %	Total (Women)
Self-Reported Health Status										
Excellent	22.6	19.2	13.1	12.0	30.3	22.8	15.1	11.2	10.2	29.5
Very good	36.1	28.7	28.5	25.3	34.9	38.5	37.4	33.8	25.6	37.8
Good	28.5	33.5	35.1	30.1	24.5	28.1	32.1	36.0	39.4	24.2
Fair	9.3	14.2	19.3	24.5	8.0	8.1	12.4	15.5	16.9	6.9
Poor	3.6	4.5	4.0	8.2	2.1	2.5	3.0	3.5	7.9	1.8
Arthritis/Rheumatism	17.7	33.0	42.6	50.3	15.7	22.0	41.2	49.3	55.6	19.2
Diabetes	1.9	6.0	9.8	10.4	3.0	3.1	6.1	9.7	9.7	3.0
High Blood Pressure	10.5	22.5	30.3	36.0	10.0	12.0	26.5	42.6	41.3	12.7
Depression	7.1	4.9	3.8	–	7.1	5.0	4.7	3.0	–	5.7
Activity Limitation	23.0	30.0	34.7	48.0	20.0	21.7	24.2	30.6	43.6	17.2
Pain or Discomfort										
No pain or discomfort	76.7	73.4	66.9	62.4	81.9	80.6	76.1	73.7	69.0	85.9
Prevents a few activities	6.1	9.0	13.7	12.3	6.3	6.5	8.0	9.3	10.1	5.0
Prevents some activities	5.2	6.5	5.1	8.8	3.4	5.6	6.2	6.1	9.3	3.7
Prevents most activities	4.7	4.5	5.2	8.9	2.7	2.3	3.5	4.2	7.3	2.1

Data source: Statistics Canada. National Population Health Survey, 1994/95 and 1998/99, cross sectional sample, health file

Exhibit 24-3. Self-Reported Health Conditions among Community-Dwelling Canadian Women by Age Group, Canada Excluding Territories, 1994/95 and 1998/99

Condition	1994/95					1998/99				
	45–54 %	55–64 %	65–74 %	75+ %	Total (Women)	45–54 %	55–64 %	65–74 %	75+ %	Total (Women)
Self-Reported Health Status										
Excellent	22.6	19.2	13.1	12.0	30.3	22.8	15.1	11.2	10.2	29.5
Very good	36.1	28.7	28.5	25.3	34.9	38.5	37.4	33.8	25.6	37.8
Good	28.5	33.5	35.1	30.1	24.5	28.1	32.1	36.0	39.4	24.2
Fair	9.3	14.2	19.3	24.5	8.0	8.1	12.4	15.5	16.9	6.9
Poor	3.6	4.5	4.0	8.2	2.1	2.5	3.0	3.5	7.9	1.8
Arthritis/Rheumatism	17.7	33.0	42.6	50.3	15.7	22.0	41.2	49.3	55.6	19.2
Diabetes	1.9	6.0	9.8	10.4	3.0	3.1	6.1	9.7	9.7	3.0
High Blood Pressure	10.5	22.5	30.3	36.0	10.0	12.0	26.5	42.6	41.3	12.7
Depression	7.1	4.9	3.8	–	7.1	5.0	4.7	3.0	–	5.7
Activity Limitation	23.0	30.0	34.7	48.0	20.0	21.7	24.2	30.6	43.6	17.2
Pain or Discomfort										
No pain or discomfort	76.7	73.4	66.9	62.4	81.9	80.6	76.1	73.7	69.0	85.9
Prevents a few activities	6.1	9.0	13.7	12.3	6.3	6.5	8.0	9.3	10.1	5.0
Prevents some activities	5.2	6.5	5.1	8.8	3.4	5.6	6.2	6.1	9.3	3.7
Prevents most activities	4.7	4.5	5.2	8.9	2.7	2.3	3.5	4.2	7.3	2.1

Data source: Statistics Canada, National Population Health Survey, 1994/95 and 1998/99, cross sectional sample, health file

SELF-RATED HEALTH STATUS

The current life expectancy at birth of women in Canada is 81 years (Statistics Canada, 2001a). Women can expect to live 69 of these years free of any disability (Statistics Canada, 2001b). In 1998/99, 53 percent of women aged 55 to 64 rated their health as very good or excellent, as did 45 percent of those aged 65 to 74, and 36 percent of those 75 and older (Exhibit 24-3).

The longitudinal component of the NPHS follows the same individuals over consecutive years of the survey. Fifteen percent of seniors who reported their health to be good, very good, or excellent in 1994/95 subsequently reported a decline to poor or fair health in 1998/99. Factors associated with a decline in self-perceived health included activity dependence (needing assistance with activities of daily living) and having heart disease. Of seniors who reported poor or fair health in 1994/95, close to half (46 percent) reported an improvement to good, very good, or excellent four years later (Anonymous, 1999).

HORMONE REPLACEMENT THERAPY

The use of hormone replacement therapy in postmenopausal women has been recommended for decades for the relief of menopausal symptoms such as hot flashes and vaginal dryness. Over the past decade, there has been a growing interest in the use of hormones for the prevention of chronic diseases.

There are wide variations in hormone regimens. In general, two types of hormones are used: estrogens and progestins. Both can be found in oral pill forms or as patches or creams that can be applied topically. With the emergence of data showing an increased risk of endometrial cancer, the use of estrogen alone in women with natural menopause has declined in recent years. The current recommendations for a woman with a uterus is to use both estrogen and progestin to decrease the risk of endometrial cancer, and to use progestin for a period of at least ten to 14 days every one to three months (Consensus Conference on Menopause, 1998). For a woman without a uterus, estrogen alone can be used.

In 1996 the Ontario Health Survey found that one percent of women aged 30 to 39, eight percent of women aged 40 to 49, 29 percent of women aged 50 to 59, 17 percent of women aged 60 to 69, and seven percent of women aged 70 and over were current users of hormone replacement therapy. Data from the 1994/95 NPHS show that Caucasian women, younger women (aged 50–54), women who reported at least one contact with a physician in the previous year, and women who reported having had a mammogram or a blood pressure check were more likely to use hormone replacement therapy (Beaudet, Walop, & Le Petit, 1997).

The number of postmenopausal women who have ever used hormone replacement therapy is even higher. Long-term compliance with hormone regimens is low, usually owing to factors such as breakthrough bleeding, breast tenderness, weight gain, and concern about the increased risk of breast cancer.

Current controversies around hormone replacement therapy centre on its use for the prevention of chronic diseases. Multiple randomized controlled trials have shown that hormone replacement therapy improves lipid profiles, but no trials have shown a decrease in fatal and non-fatal heart attacks. A recent study showed no significant effect on heart attacks after four years of hormone use for postmenopausal women with a history of coronary heart disease (Hulley et al., 1998). In fact, in the first year or two, there was a slight increased risk of heart attacks. Because of data from this study, health care professionals have tempered their recommendation for using hormone replacement therapy for the secondary prevention of coronary disease.

A number of large observational studies have suggested that hormone replacement therapy decreases osteoporotic fractures (Grady et al., 1992). However, most randomized controlled trials have shown an increase in bone mineral density but no effect on fractures. There has been only one small randomized controlled trial, involving fewer than 100 women, which showed a decrease rate of spine fractures, and this study has methodological problems (Lufkin et al., 1992).

Accumulating data suggests that the use of hormone replacement therapy may increase the risk of breast cancer, especially after more than five to ten years of use (The Collaborative Group on Hormonal Factors in Breast Cancer, 1997; Colditz, 1993; Dupont, 1991; Sillero-Arenas, 1992; Steinberg, 1991). The increase in risk is small, and the cancers associated with hormone use may be of a less aggressive type (Gapstur, Morrow, & Sellers, 1999; Schairer et al., 2000).

Other adverse effects include increased risk of blood clots. Potential beneficial effects may include decreased risk of colorectal cancer, improved cognitive function, and decreased risk of depressive symptoms. As research moves from observational studies to randomized controlled trials, there has been a shift in our understanding of the benefits and risks of hormone use. Observational studies are prone to selection bias: women who choose to take hormone replacement therapy may be very different from the ones who choose not to take hormone replacement therapy. In well-conducted randomized controlled trials, biases such as these are removed. These and other effects are currently being studied by a few large randomized controlled trials such as the Women's Health Initiative.

Selective estrogen receptor modulators (SERMs) are an alternative to hormone replacement therapy, especially for women who do not suffer from hot flashes. One SERM, Raloxifene, has been shown in a large randomized controlled trial to decrease the risk of spine fractures, increase bone mineral density, and decrease the risk of breast cancer (Ettinger et al., 1999). Other advantages include an improvement in lipid profiles, no increased risk of endometrial cancer, no breakthrough bleeding, and no breast tenderness. Currently, ongoing studies are being conducted to see if Raloxifene decreases the risk of heart attacks and breast cancer. However, Raloxifene has not been found to be useful for decreasing menopausal symptoms such as hot flashes.

Women are also turning to alternative non-prescription therapies for the relief of menopausal symptoms. These therapies include soy products, primrose oil, black cohosh, vitamin E supplements, and dong quai (Seidl & Stewart, 1998). None of these products have been subjected to rigorous studies looking at their long-term risks and benefits.

Hormone replacement therapy has been shown to either improve or not change the quality of life in postmenopausal women in short-term randomized controlled trials of one to two years. Raloxifene has been shown not to affect most quality-of-life domains. The effects of other alternative non-prescription therapies on the quality of life of postmenopausal women are not clear.

The debate about hormone replacement therapy is in part due to contradictory results from scientific studies examining its risks and benefits. However, it is also in part a philosophical and ethical debate that expresses reservations about medicalizing a natural process (menopause) and turning it into a condition that requires decades of treatment, and concern over the current societal expectation that women should maintain the characteristics of youth as they grow older.

CARDIOVASCULAR DISEASE

Cardiovascular disease is the leading cause of mortality in postmenopausal and senior women in Ontario (Chan & Young, 1999). In the over-80-year-old category, cardiovascular deaths in women outnumber cardiovascular deaths in men by a ratio of over three to two (Chan & Young, 1999). Overall, cardiovascular disease accounts for approximately equal numbers of deaths among women and men (11,600 and 12,400 respectively) but affects men at an earlier age. It is estimated that by 2018, cardiovascular deaths in women will exceed 20,000 per year (Chan & Young, 1999).

Cardiovascular disease is a broad term that encompasses conditions affecting the heart and circulatory system. It includes: coronary artery disease, whereby the blood vessels to the heart are blocked; peripheral vascular disease, whereby the blood vessels to legs and arms are blocked; diseases of the heart valves; high blood pressure; disturbances of heart rhythm; and various inflammatory and infectious diseases of the heart muscle itself. Coronary artery disease is the largest component of cardiovascular disease and includes angina (chest pain resulting from insufficient blood to the heart) and acute heart attacks.

Research on cardiovascular disease has focused mainly on men, and results have been extrapolated to women (Wenger, Speroff, & Packard, 1993; Mosca et al., 1997). However, a growing number of clinical and epidemiologic studies have shown that cardiovascular disease has gender-specific features. Women and men appear to differ with respect to pathophysiologic processes and clinical presentations; women's first symptom is often angina rather than an acute heart attack (Rish-Edwards et al., 1995; Cotton, 1990; Mohri et al. 1998). Although women and men present with similar symptoms, women present more often then men with atypical symptoms (Willich et al., 1993). In addition, standard diagnostic testing has a lower predictive value in women than in men, although advances have been made in this area over the past few years.

Although cardiovascular risk factors are similar for men and women, the prevalence of these factors differs and some have a differential impact in women. The risk of developing heart disease is greater after surgical menopause than with natural menopause, if surgery is done before the age of natural menopause. Other risk factors contributing to heart disease in women as compared to men are smoking (4.9 times more likely), diabetes (4.5 times more likely), total cholesterol level greater than 5.2mmol/L (2.1 times more likely), family history (1.9 times more likely), hypertension (1.3 times more likely), and obesity (1.1 times more likely) (Dustan, 1990; Eaker, Packard, & Thom, 1989; Eaker, Thom, & Castelli, 1988; Emond & Zareba, 1997; Kannel, 1987; Meilahn, 1992; Murabito, 1995; Perlman, Wolf, Ray, & Lieberknecht, 1988; Seltzer, 1991; Stokes, Kannel, Wolf, Cupples, & D'Agostino, 1987; Swahn, 1998; Wilson, Garrison, & Castelli, 1985).

Data from the Framingham study suggest that a Type A personality is predictive of coronary disease in both men and women. Anxiety at baseline was also predictive of heart disease in women. Marriage was a risk factor for women and a protective factor for men. Among working women, clerical workers with decreased job mobility and suppressed hostility were at highest risk. There was no apparent difference in risk between women working inside or outside the home (Haynes & Feinleib, 1980; Eaker, 1989; Eaker, Pinsky, & Castelli, 1992).

Prior to menopause, women have higher HDL-cholesterol ("good" cholesterol) levels than their male counterparts, but after menopause HDL-cholesterol levels tend to fall (Kannel, Hjortland, McNamara, & Gordon, 1976). Low levels of HDL-cholesterol, especially when coupled with high triglyceride levels, are stronger predictors of cardiovascular disease in women than in men and are more useful than total cholesterol in determining a woman's cardiovascular risk (Campos et al, 1990; Posner et al., 1993). For example, women with an HDL-cholesterol level of 0.6 to 1.2mmol/L have six times the risk of developing coronary disease. In addition, once women become menopausal, their LDL-cholesterol ("bad" cholesterol) levels are higher than those of their male peers.

Patients' sex, age, and race have been found to influence physician recommendations independent of other risk factors (Ayanian et al., 1993; Cohen, 1988; McLaughlin et al., 1996; Ramsey et al., 1997; Schulman et al., 1999; Soumerai et al., 1997; Steingart et al., 1991; Whittle et al., 1993). Women are less often prescribed cardiovascular medications such as aspirin, beta-blockers, and thrombolytic therapies (Bearsen et al., 1994; Canto et al., 2000). Studies have also shown that women are referred both later and less frequently for cardiac catheterization and coronary artery bypass surgery (Barron et al., 1998; Chandra et al., 1998; Gurwitz et al., 1996; Tobin et al., 1987). The reason for these disparities in physician practices remains unclear, and may reflect a complex combination of biological and sociological differences, as well as patient preferences.

Historically, there has been a general lack of awareness among women about the seriousness of cardiovascular disease; many perceive breast cancer as a greater threat to their health. However, public campaigns are developing public awareness of cardiovascular disease in women. In a 1997 Canadian telephone survey of a random sample of 604 adults (302 men and 302 women) aged 40–65 in Toronto, Vancouver, and Montreal, the proportion of women who said breast cancer was of very great or great concern for them (50 percent) and the proportion of women who said heart disease was of very great or great concern for them (46 percent) were very close (Impact Research, 1997).

OSTEOPOROSIS

Osteoporosis affects 1.4 million Canadians, particularly postmenopausal women. It is a disease characterized by low bone mass and microarchitectural deterioration of bone tissue, resulting in bone fragility and an increased risk of fractures (Consensus Development Conference, 1993). Predisposing factors include increased age, being female, Caucasian, or Asian, having late menarche (age 15 or later) or early menopause (before age 45), having low peak bone mass, low dietary calcium, little physical activity, smoking, drinking excessive alcohol, and taking certain medications such as steroids, immunosuppresants, anticonvulsants, and heparin.

Postmenopausal women are at increased risk for osteoporosis. Data from the Canadian Multicentre Osteoporosis Study show that osteoporosis affects one in six women over the age of 50 (Tenenhouse et al., 2000). The loss of estrogen results in loss of bone mass. In the first five years immediately following menopause, women can experience bone loss at a rate of two to five percent per year. This rate of bone loss usually diminishes after ten years to one to two percent per year.

Women with osteoporosis are at risk of fractures of the wrist, spine, and hip, as well as other fractures. These can occur with minimal trauma, such as falling from standing height. For an average 50-year-old woman, the lifetime risk of forearm fracture is 16 percent; of spine fracture, 15.6 percent; of hip fracture, 17.5 percent; and of any osteoporotic fracture, greater than 40 percent (Melton et al., 1992). In 1993, over 60,000 women in Canada were estimated to have osteoporosis-related fractures. These fractures were responsible for more than 29,000 hospitalizations and 643,000 hospital days. An additional 47,000 fractures required outpatient care, and nearly 23,000 women were in either long-term or chronic-care facilities because of osteoporotic fractures. In Ontario 9,382 hip fractures and 9,653 wrist fractures were treated in 1996 (Jaglal, 1998). These numbers are expected to increase exponentially as the Ontario population ages. By 2041 the number of Ontarians aged 65 and over is expected to more than double, and the number of hip fractures is expected to triple (Jaglal, 1996).

Osteoporotic fractures cause considerable morbidity and mortality. Women with spine fractures often have low self-esteem, depression, fear of falling, and difficulty with activities of daily living. They can also have decreased exercise tolerance because of reduced lung capacity, decreased appetite because of reduced abdominal capacity, and back pain because of the fracture or altered body mechanics. Women with fractures of the spine and hip have an increased mortality. As many as 20 percent of hip fracture patients died in their first year post-fracture, often because of complications due to hospitalization (Cooper et al., 1993). Many lose their independence and move to a nursing home post-fracture. Because osteoporosis often results in a deterioration of the functional status and quality of life, the burden it places on patients, their social supports, and the health-care system is substantial.

In 1993 a group of experts convened by the WHO defined osteoporosis in postmenopausal women on the basis of bone mineral density (BMD). A BMD value greater or equal to 2.5 standard deviations below the young adult mean is defined as osteoporosis, and a BMD value between one and 2.5 standard deviations below the young adult mean is defined as osteopenia. The term severe osteoporosis is used for anyone who has osteoporosis and has sustained a fragility fracture. This definition of osteoporosis allows one to identify a postmenopausal woman at risk of an osteoporotic fracture before it happens.

The relationship between low bone density and the risk of fractures is a continuous one. Women with osteopenia have a lower risk than women with osteoporosis, but they may be at greater risk than women with normal bone mineral density. The prevalence of osteopenia among women aged 50 and over in Canada is 45.9 percent (Tenenhouse et al., 2000). This is very similar to the 50 percent prevalence rate observed in the National Health and Nutrition Examination Survey III study in the United States.

Fortunately, osteoporosis and osteopenia can be detected by bone density testing (see Chapter 9), and prevention and treatment can be started early in high-risk women. Preventive strategies include lifestyle modifications such as increasing physical activity especially weight-bearing exercises, stopping smoking, decreasing alcohol and caffeine intake, and consuming adequate dietary calcium and vitamin D. Weight-bearing exercise can increase peak bone mass in teenagers, and help maintain bone mass in postmenopausal women. Adequate calcium and vitamin D are important, but may not be sufficient alone, in maintaining bone mass. Currently, there are also many pharmacological treatment options for postmenopausal women with osteoporosis. These include hormone replacement therapy, selective estrogen receptor modulators, bisphosphonates, calcitonin, and parathyroid hormone. In addition, strategies to prevent falls and increase the use of hip protectors are important, especially in decreasing hip fractures among the elderly.

The Ontario Women's Health Council recently commissioned a Strategic Action Working Group for Osteoporosis, and a comprehensive report was presented to the Ontario Ministry of Health. Implementation of those policy recommendations will help to reduce the burden of osteoporosis in Ontario.

ARTHRITIS/OSTEOARTHRITIS/RHEUMATISM

Arthritis is a term that encompasses a wide range of joint disorders, including those resulting from degenerative disease, inflammatory disease, and post-traumatic damage. The most common forms are osteoarthritis, a degenerative disorder characterized by destruction and loss of cartilage and damage to underlying bone, and rheumatoid arthritis, a systemic autoimmune disease. There are no known cures for any form of arthritis, and the underlying causes are not known. As a result treatment is mainly aimed at relieving pain and improving physical function.

Arthritis and related conditions are chronic and progressive and are a leading cause of long-term disability and health-care utilization (Kramer, Yelin, & Epstein, 1983; Liang et al., 1984; Badley, 1995; Dunlop, Manheim, Song, & Chan, 2001). The majority of hip and knee replacement recipients have some form of arthritis, and the primary indication for undergoing surgery is often pain. Arthritis and related conditions are the second leading cause for taking prescription and over-the-counter medication and the third leading reason for consulting a health professional (Williams, Iron, & Wu, 1998).

Arthritis is a condition that affects more women than men. It has been estimated that the number of Canadians diagnosed with arthritis will increase by approximately one million per decade over the next four decades (Badley & Wang, 1998). The increase will be seen in the population aged 45 and older and will be split between those in the working-age population and those aged 65 and older. In the 1998/99 NPHS, 15 percent of Canadians reported having received a diagnosis of arthritis or rheumatism from a health professional. Among women the overall prevalence rate was 19.2 percent. Prevalence increased with age, ranging from 22.0 percent for women aged 45 to 54, to 55.6 percent among women 75 and older (Exhibit 24-3). The prevalence by age increased more rapidly for women than for men, and in all age groups women were more likely to have been diagnosed with arthritis or rheumatism. The prevalence rates for the community-dwelling sample were similar to those obtained from the institutional component of the NPHS (Badley & Wang, 1998).

Two other community-based national surveys have obtained estimates for the prevalence of arthritis. Statistics Canada's 1991 General Social Survey estimated the prevalence of arthritis, rheumatism, and bursitis among women to be 25 percent (Badley & Wang, 1998), a percentage that is higher than estimates obtained from the 1994/95 NPHS. The 1990 Ontario Health Survey estimated the prevalence of arthritis among women to be 21.1 percent (Badley, Webster, & Rasooly, 1995), a percentage that is also higher than that obtained from the NPHS. These differences in prevalence may result from the application of different definitions.

Arthritis is the most frequent cause of long-term disability in the adult population (Badley, 1995; Guccione et al., 1994; Reynolds et al., 1992). The prevalence of disability due to arthritis was estimated to be between 2.2 percent and 2.3 percent of the population in all three Canadian surveys, representing over half a million people. In the Ontario Health Survey, 53 percent of people with arthritis reported that pain that limited their activities (Badley, Webster, & Rasooly, 1995) and in the NPHS, approximately 40 percent reported long-term disability (Williams, Iron, & Wu, 1998). As well, the Women's Health and Aging Study, a survey of disabled community-dwelling women, found arthritis to be the most commonly reported chronic condition among disabled community-dwelling women aged 65 and older (Hochberg, Kasper, Williamson, Skinner, & Fried, 1995).

BREAST CANCER

Breast cancer accounts for 30 percent of all new cancer cases diagnosed among women in Canada. Over the past decade the incidence of breast cancer has increased steadily. It is now expected that two in 19 women will develop breast cancer during their lifetime (National Cancer Institute of Canada, 2000).

Exhibit 24-4 shows estimated breast cancer cases and deaths for 2000 by age group, as well as the probability of developing cancer within specific age groups. Among women aged 50 and older, it is estimated that 14,900 Canadian women will have been diagnosed with breast cancer in 2000. This represents 78 percent of all breast cancer cases diagnosed in that year.

Although mortality rates from breast cancer have seen a recent decline, breast cancer remains the second leading cause of cancer death among Canadian women (National Cancer Institute of Canada, 2000). In Ontario, 74 percent of women diagnosed with breast cancer can expect to live past five years and this expectation is similar to what has been reported in other regions within and outside Canada (McLaughlin et al., 1995). There is little variation in survival by age. Survival from breast cancer is related to the stage at which the disease is detected, and women diagnosed with localized tumours have better prognoses.

Risk factors for breast cancer include age, a family history of breast cancer, age at menarche, age at menopause, parity, age at first pregnancy, weight, radiation exposure, previous benign breast disease, use of hormone replacement therapy, and possibly diet (Harris, Morrow, & Bonadonna, 1993; Carbone, Jordan, & Bonadonna, 1995). Breast cancer also appears to be a disease of the affluent, with women in higher socioeconomic groups experiencing close to a twofold increased risk (Farley & Flannery, 1989; Rimpela & Pukkala, 1987; Van Loon, Burg, Goldbohm, & van den Brandt, 1995).

Exhibit 24-4. Distribution of Cancer Incidence and Mortality, and Probablity of Developing Cancer Over Ten Years, by Age Group and Cancer Site, Women, 2000

	Age Group				Sub-total	Total
Cancer Site	50–59	60–69	70–79	80+	Age 50+	(Age 20+)
			Estimated Incidence			
Breast	4,600	4,100	3,900	2,300	14,900	19,200
% of total	24%	21%	20%	12%	78%	100%
Lung	1,450	2,300	2,600	1,350	7,700	8,400
% of total	17%	27%	31%	16%	92%	100%
Colorectal	1,000	1,600	2,400	2,200	7,200	7,800
% of total	13%	21%	31%	28%	92%	100%
			Estimated Mortality			
Breast	930	970	1,350	1,450	4,700	5,500
% of total	17%	18%	25%	26%	85%	100%
Lung	1,000	1,800	2,300	1,350	6,450	7,000
% of total	14%	26%	33%	19%	92%	100%
Colorectal	300	500	860	1,200	2,860	3,000
% of total	10%	17%	29%	40%	95%	100%
			Probablity of Developing Cancer in the Next Ten Years			
					(Lifetime)	
Breast	2.3%	2.9%	3.2%	2.2%	10.6%	
One in :	43.5	34.5	31.3	45.5	9.4	
Lung	0.8%	1.6%	1.9%	1.2%	5.0%	
One in :	125.0	62.5	52.6	83.3	20.0	
Colorectal	0.6%	1.3%	2.2%	2.2%	5.6%	
One in :	166.7	76.9	45.5	45.5	17.9	

Data source: National Cancer Institute of Canada. Canadian Cancer Statistics 2000

Since many risk factors for breast cancer do not lend themselves to alteration, emphasis has been placed on early detection, through screening mammography or clinical breast exam. Studies suggest that early detection of breast cancer by screening mammography may reduce breast cancer mortality by 30 to 40 percent (Kerlikowske, Grady, Rubin, Sandrock, & Ernste, 1995; Shapiro, Venet, Strax, Venet, & Roeser, 1982; Tabar et al., 1985). Current recommendations are for women aged 50 to 69 to undergo screening mammography biennially (Canadian Task Force on Preventive Health Care, 1994). See also Chapter 19 on cancer screening.

Organized breast cancer screening programs have been implemented in almost all provinces and territories (Organized Breast Cancer Screening Programs in Canada, 2001). Data from the 1996–97 NPHS indicate that over 50 percent of women aged 50 to 69 had had screening mammography in the previous two years. However, a quarter of women aged 50 to 69 had never had screening mammography (Gentleman & Lee, 1997).

A number of studies, including studies done in Ontario, have found lower rates of breast cancer screening among rural women and women in lower socioeconomic groups (Mercer & Goel, 1997; Katz & Hofer, 1994). This finding may be reflected in studies that show that women in lower socioeconomic groups and women living in rural areas tend to be diagnosed with more advanced breast cancer than their counterparts (Bryant & Mah, 1992; Farley & Flannery, 1989; Richardson et al., 1992). Screening attendance and early detection has also been related to physician recommendation (Grady et al., 1992; Ross, Rosenberg, Pross, & Bass, 1994

Exhibit 24-4. Distribution of Cancer Incidence and Mortality, and Probablity of Developing Cancer Over Ten Years, by Age Group and Cancer Site, Women, 2000

Cancer Site	Age Group 50–59	 60–69	 70–79	 80+	Sub-total Age 50+	Total (Age 20+)
			Estimated Incidence			
Breast	4,600	4,100	3,900	2,300	14,900	19,200
% of total	24%	21%	20%	12%	78%	100%
Lung	1,450	2,300	2,600	1,350	7,700	8,400
% of total	17%	27%	31%	16%	92%	100%
Colorectal	1,000	1,600	2,400	2,200	7,200	7,800
% of total	13%	21%	31%	28%	92%	100%
			Estimated Mortality			
Breast	930	970	1,350	1,450	4,700	5,500
% of total	17%	18%	25%	26%	85%	100%
Lung	1,000	1,800	2,300	1,350	6,450	7,000
% of total	14%	26%	33%	19%	92%	100%
Colorectal	300	500	860	1,200	2,860	3,000
% of total	10%	17%	29%	40%	95%	100%
			Probablity of Developing Cancer in the Next Ten Years			
					(Lifetime)	
Breast	2.3%	2.9%	3.2%	2.2%	10.6%	
One in :	43.5	34.5	31.3	45.5	9.4	
Lung	0.8%	1.6%	1.9%	1.2%	5.0%	
One in :	125.0	62.5	52.6	83.3	20.0	
Colorectal	0.6%	1.3%	2.2%	2.2%	5.6%	
One in :	166.7	76.9	45.5	45.5	17.9	

Data source: National Cancer Institute of Canada, Canadian Cancer Statistics, 2000.

Since many risk factors for breast cancer do not lend themselves to alteration, emphasis has been placed on early detection, through screening mammography or clinical breast exam. Studies suggest that early detection of breast cancer by screening mammography may reduce breast cancer mortality by 30 to 40 percent (Kerlikowske, Grady, Rubin, Sandrock, & Ernste, 1995; Shapiro, Venet, Strax, Venet, & Roeser, 1982; Tabar et al., 1985). Current recommendations are for women aged 50 to 69 to undergo screening mammography biennially (Canadian Task Force on Preventive Health Care, 1994). See also Chapter 19 on cancer screening.

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A number of studies, including studies done in Ontario, have found lower rates of breast cancer screening among rural women and women in lower socioeconomic groups (Mercer & Goel, 1997; Katz & Hofer, 1994). This finding may be reflected in studies that show that women in lower socioeconomic groups and women living in rural areas tend to be diagnosed with more advanced breast cancer than their counterparts (Bryant & Mah, 1992; Farley & Flannery, 1989; Richardson et al., 1992). Screening attendance and early detection has also been related to physician recommendation (Grady et al., 1992; Ross, Rosenberg, Pross, & Bass, 1994).

LUNG CANCER

Lung cancer is the leading cause of cancer death among Canadian women. For over a decade mortality rates have increased at a rate of 2.5 percent per year, possibly as a result of increased smoking among women. Incidence and mortality rates are now five times higher than in 1971 (National Cancer Institute of Canada, 2000). The prognosis for women diagnosed with lung cancer is poor; only 17 percent are expected to survive beyond five years (McLaughlin et al., 1995).

Exhibit 24-4 shows an estimated number of lung cancer cases and deaths in 2000 by age group, as well as the probability of developing cancer in specific age groups. It is estimated that one in 20 women will develop lung cancer during their lifetime and one in 22 will die from lung cancer. Among women aged 50 and older, 7,700 women will have been diagnosed with lung cancer in 2000. This represents 92 percent of all lung cancer cases. Close to half of all lung cancer cases will have been diagnosed in women 70 and older. Rates of lung cancer incidence and mortality for women in Ontario are similar to the national average (National Cancer Institute of Canada, 2000).

COLORECTAL CANCER

Colorectal cancer is the third leading cancer among Canadian women. Although rates for colorectal cancer have declined significantly in the past decade, the number of new cases continues to rise as a result of the aging population. In Ontario just over half of those diagnosed with colorectal cancer are expected to survive beyond five years (McLaughlin et al., 1995).

Exhibit 24-4 shows the expected number of new cases and deaths due to colorectal cancer by age group. In 2000 it is estimated that 7,800 women will have been diagnosed with colorectal cancer and 3,000 will have died from it. The risk of colorectal cancer increases with age and 92 percent of new cases diagnosed among women will be in the 50 and older age group. Sixty percent of new cases will be diagnosed among women aged 70 and older.

Over the past ten years, incidence and mortality rates for women with colorectal cancer have been declining significantly at a rate of about one percent and two percent per year respectively (National Cancer Institute of Canada, 2001). Rates have declined for both men and women, but the change has been greater for women. Since 1985 incidence rates have dropped by eight percent for men and by 19 percent for women. There is evidence to suggest that these declines may be due to increased screening and early detection, which could prevent progression of polyps to invasive cancers (Gilbertson, 1984; Newcomb et al., 1992; Towler et al., 1998). New recommendations of the Canadian Task Force on Preventive Health Care recommend screening of adults 50 years and older (Canadian Task Force on Preventive Health Care, 1994).

Recent studies also suggest that hormone replacement therapy may reduce colorectal cancer risk in postmenopausal women (Crandall, 1999; Grodstein, Newcomb, & Stampfer, 1999; Nanda, Bastian, Hasselblad, & Simel, 1999). Non-steroidal anti-inflammatory drugs, such as aspirin, may also protect against colorectal cancer (Reddy et al., 2000).

DEMENTIA/ALZHEIMER'S DISEASE

Alzheimer's disease, the most common cause of dementia, is a progressive neurodegenerative condition characterized by cognitive impairment and overall functional decline. It represents approximately two-thirds of dementia cases. Vascular dementia, a condition caused by systemic vascular disease such as artherosclerosis and hypertension, is the second most common form of dementia and represents approximately 20 percent of dementia cases.

The Canadian Study of Health and Aging, in which elderly people living in institutions and in communities across Canada were screened for dementia, estimated the 1991 incidence of dementia to be 252,600 cases (eight percent) among Canadians aged 65 and older (Canadian Study of Health and Aging Working Group, 1994). Prevalence increased sharply with age (to 34.5 percent) among persons aged 85 and older. Cases were roughly equally divided between community-dwelling individuals and those in institutions. Alzheimer's disease accounts for about 60 percent of cases of dementia.

Women were twice as likely as men to have met the criteria for dementia and accounted for 68 percent of cases in 1991. Alzheimer's disease was more common among women, whereas vascular dementia was more common among men. The relationship of dementia and sex is not consistent across published studies; however, most show a significant relationship between Alzheimer's disease and being female (Goa, Hendrie, Hall, & Hui, 1998; Jorm & Jolley, 1998).

The incidence component of the Canadian Study of Health and Aging reported age-standardized incidence rates of 21.8 for women and 19.1 for men per 1,000 persons per year (Canadian Study of Health and Aging Working Group, 2000). This translates into 60,150 new cases of dementia per year, of which 36,320 will be diagnosed in women. Overall incidence rates approximately doubled with each five year increase in age. This finding is consistent with what has been reported in other studies (Goa et al., 1998; Rockwood & Stadnyk, 1994).

A number of studies have shown that the survival of women with dementia is much poorer than that of women without cognitive impairment (Koutsavlis & Wolfson, 2000). Women diagnosed with Alzheimer's disease or vascular dementia have five-year mortality rates of close to 60 percent in the 65 to 74 age group and over 80 percent in the 85 and older age group. Canadian women aged 65 to 74 with dementia have ten times the risk of death at five years than women of the same age in the general population, and women aged 85 and older have twice the risk of death of women in the general population (Ostbye, Hill, & Steenhuis, 1999). Women diagnosed with cognitive impairment other than vascular dementia or Alzheimer's disease have a better prognosis, but still fare worse than the general population. The same study found that, for all types of dementia, the most common cause of death was vascular disease, and these rates were higher than among the general population (Ostbye, Hill, & Steenhuis, 1999).

Most dementias are progressive and irreversible. The social and financial impact on families and society is high. The annual cost of caring for patients with dementia has been estimated to range from $9,451 per patient with mild disease to $36,794 for patients with severe disease (1996 Canadian dollars) (Hux et al., 1998).

Age and family history are known to be significant risk factors. There is debate in the literature as to whether estrogen replacement therapy is protective against cognitive impairment and Alzheimer's disease. A number of observational studies suggest that women who take estrogen preserve or even improve their cognitive function more than women who do not; there are also a number of studies that do not support this hypothesis (Benson, 1999; Birge, 1996; McBee, Dailey, Dugan, & Schumaker, 1997; Yaffe, Sawaya, Lieberburg, & Grady, 1998). Further studies are needed to ascertain whether estrogen replacement therapy can prevent or slow the progression of Alzheimer's disease. As well, implementing preventive measures requires that we have a better understanding of risk factors so that high risk women may be targeted for prevention.

ABUSE

Abuse and mistreatment of the elderly occurs in a number of forms, including physical, verbal, or psychological abuse, material or financial exploitation, and neglect. The victim and the offender are often related, and the offender often has the role of caregiver. Studies that have examined rates of abuse have found them to be similar among women and men. However, given the difference in demographics, this translates into substantially greater numbers of women being affected.

There are few studies that have tried to estimate the prevalence of abuse and neglect among the elderly. Among the studies that exist, many have experienced very low response rates or methodological problems. For a number of reasons, estimating prevalence of abuse among the elderly is difficult. Victims of abuse may be reluctant to admit abuse. A study of abuse of the elderly by their caregivers found that abusers were more likely than victims to acknowledge abuse in their relationship (Homer & Gilleard, 1990). As well, victims of abuse may be difficult to reach as a result of being isolated, or may be unable to recognize or report abuse due to physical or mental disability.

A Canada-wide study of the prevalence of elder abuse among those living in private dwellings was published in 1990 (Podnieks, Pillemer, Nicholson, Shillington, & Frizzel, 1990). In this study Podnieks and colleagues found that four percent of elderly Canadians had experienced some form of abuse in their own home. Extending the estimates to the whole of the Canadian population, the authors estimate that 100,000 elderly Canadians suffer abuse at the hands of their caregivers. In considering types of abuse, material abuse was most commonly reported (1.9%–3.3%), followed by verbal abuse (0.8%–1.8%), physical abuse (0.3%–0.9%), and neglect (0.2%–0.6%).

The estimated prevalence of abuse in Ontario was four percent (Podnieks et al., 1990). The highest rates of abuse were found in BC (5.3 percent) and lowest in the prairies (three percent). Studies of abuse among community-dwelling elderly in Boston and in Great Britain report similar overall prevalence rates but there is variation with respect to specific types of abuse (Ogg & Bennett, 1992; Pillemer & Finkelhor, 1988). Because victims may be difficult to reach or reluctant to report abuse, these rates are likely to be underestimates, reflecting the minimum level of abuse (Podnieks et al., 1990).

Risk of abuse has been related to characteristics of both the abused elderly and the caregiver. While all forms of abuse have similar characteristics, there are some important differences. Physical and verbal abuse have been found to occur more often among elderly individuals living with others (Podnieks et al., 1990). Financial or material exploitation is found to occur more frequently among those living alone (Hudson, 1997; Podnieks et al., 1990). Victims of physical violence were more likely to be married and living with the abuser, who in the majority of cases is the victim's spouse. Victims of material exploitation were more likely to be socially isolated and were more often women. Elderly who require assistance performing activities of daily living are more likely to suffer neglect and material abuse but are not more likely to suffer physical or verbal abuse (Homer & Gilleard, 1990; Paveza et al., 1992; Podnieks et al., 1990).

Elderly with dementia are more likely to suffer physical abuse and are also more likely to be abusive towards their caregivers. Violence directed at the caregiver is increased if, prior to the onset of dementia, the patient had a poor relationship with the caregiver or had behaviour problems (Paveza et al., 1992; Homer & Gilleard, 1990).

Characteristics of caregivers have been related to increased risk of abuse. A number of studies suggest that caregiver characteristics may be more predictive of abuse than characteristics of the victim. Family members who are emotionally or financially dependent on the elderly person are more likely to be abusive (Kleinschmidt, 1997). Alcohol use and a history of violence and antisocial behaviour in other contexts are related to abusive behaviour (Klienschmidt, 1997; Homer & Gilleard, 1990). Increased stress on the part of the caregiver has not been found to be predictive of abusive behaviour in the community setting (Podnieks et al., 1990).

In their study Podnieks and colleagues found that most victims of abuse had not reported their situation to anyone, even friends or relatives. Elderly victims of abuse, particularly those suffering neglect, were more likely to report that they were depressed and that they wished their lives would end or that they had considered taking their own lives.

There is little information on abuse in nursing homes and institutions, and the prevalence of abuse in these settings is unknown. What information there is suggests that abuse of institutional residents should be addressed separately from abuse of community-dwelling elderly (McDonald & Collins, 2000; Beaulieu & Tremblay, 1995). Determinants of abuse, modes of detection, and definitions of types of abuse may be different in the institutional setting; as a result, different intervention strategies may be required.

In 1994 the Canadian Task Force on the Periodic Health Examination published recommendations for family physicians on the secondary prevention of elder abuse and mistreatment (Canadian Task Force on the Periodic Health Examination, 1994). The task force recommends that physicians be aware of indications of elder abuse but found insufficient evidence to recommend specific protocols.

A better understanding of patient/caregiver interactions and predictors of abuse is required to facilitate development of effective intervention strategies. There is a need to identify effective intervention strategies that address the victim's safety while respecting the individual's autonomy. More information is required in order to inform these decisions.

A number of authors have suggested that elder abuse in the community setting be examined as a chronic condition or using a model of families at risk of violence (Lachs & Pillemer, 1995; Paveza et al., 1992). Reframing the condition in this way would have implications for how abuse is defined and what constitutes an intervention.

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CHAPTER 25 – IMMIGRANT AND VISIBLE MINORITY WOMEN

ILENE HYMAN

OVERVIEW

This chapter presents information on the sociodemographics, health, and determinants of health of immigrant and visible minority women in Ontario. In examining the health issues of this particular subgroup, heterogeneity with respect to immigrant status, source country, length of stay, category of migration, "visibility," and knowledge of host country languages must be recognized. Findings indicate that most immigrant women arrive in Canada in good health but experience an increased risk of poor health status over time owing to financial hardship, work- and resettlement-related stress, inadequate social support, changing health behaviours, and cultural, economic, and systemic barriers to appropriate health services. Contrary to popular belief, there is no evidence that immigrants overutilize health-care services as a whole; however, underutilization is prevalent in the use of preventive and mental health services. Findings further suggest that the health of immigrant and visible minority women is largely determined by environmental and living conditions, and often changes in response to pressures associated with poverty, marginalization, and class inequity. Therefore, multisectoral approaches are needed to promote and maintain the good health and health-enhancing behaviours of immigrant and visible minority women in Ontario.

INTRODUCTION

Health outcomes were reviewed for the major categories of chronic and infectious diseases for which data on immigrants and visible minority populations were available. These data include: self-reported health status, cancer, heart disease, tuberculosis (TB), HIV/AIDS, mental health, perinatal health, and diabetes.

According to the Population Health model proposed by Health Canada, many broad determinants influence the health of all Canadians, including gender, income and social status, employment and working conditions, health practices, social and physical environments, and culture. This chapter reviews literature on selected determinants: income, education, and work; health behaviours; social support and stress; and health-service utilization.

METHODS

Socio-demographic information was obtained from the 1996 census, Citizenship and Immigration Canada (CIC) reports, and special tabulations prepared for the Centre of Excellence for Research in Immigration and Settlement (CERIS). This information was not always aggregated by gender and province.

Health information was derived from a recently completed literature review on immigration and health prepared for Health Canada. (For more information, see Hyman, 2001). For each health outcome, both Canadian literature and major international literature were reviewed. Whenever possible, gender- and Ontario-specific findings were extracted.

Information on the main determinants (i.e., explanatory factors) of immigrant and minority health were derived from the Health Canada literature review and supplemented with analyses using data from the 1996/97 National Population Health Survey (NPHS). (For a more detailed description of the latter, see Chapter 1.)

Specific attention was paid to population subgroups among immigrant and visible minority women which the literature suggested might be at increased risk of poor health status. For example, many studies reported that recent immigrants (i.e., people who immigrated to Canada within the last five years) face significant adjustment and resettlement stress (Canadian Task Force, 1988). Newcomers from countries in Asia, the Middle East, Latin America, and Africa, from which immigrants to Canada have not traditionally come, often hold concepts about health and health-care behaviour that differ from those prevalent in majority North American culture (Edman & Kameoka, 1997; Landrine & Klonoff, 1994; Millet, Sullivan, Schwebel, & Myers, 1996). Discrimination presents a major barrier for visible minority populations which could impact on their health and the quality of health care they receive (Beiser, Gill, & Edwards, 1993; Noh, Beiser, Kaspar, Hou, & Rummens, 1999).

Using derived variables available in the NPHS database, three broad subgroups were defined: derived length of stay in Canada (less than ten years, ten years or more), country of birth (Western country, Asia, other) and derived race or colour ("visible minority status") (White, other). Comparisons were made with the Canadian-born population. Owing to small cell sizes, whenever possible, variables were dichotomized. Sociodemographic variables included: derived highest level of education (secondary school or less, secondary school graduate or higher) and derived income adequacy (low-income quintile, other-income quintile). Health behaviours included: alcohol use (regular drinker, not regular drinker), obesity (overweight, not overweight), physical activity (active, not active), smoking (regular smoker, not regular smoker), source of care (regular doctor, no regular doctor), Pap screening (less than three years ago, over three years ago, never) and mammography screening (less than two years ago, more than three years ago, never). All analyses were conducted on samples of Ontario women aged 20 to 69, with the exception of the study of mammography screening (ages 50–69). A derived weight variable was used to weight all estimates.

INTERPRETIVE CAUTIONS

Some of the features of population surveys such as the NPHS that may limit their usefulness for examining the health of immigrants and visible minority populations include the following:

- Owing to small cell numbers, it is not always possible to analyze data for population subgroups (e.g., country of birth).
- It is not usually possible to compare the health status of immigrants with that of refugees.
- Differences in health status by length of stay may reflect shifts in immigrants' source countries rather than temporal differences.
- Cultural factors and the use of proxy respondents may influence the reporting of health problems.
- Population surveys often use scales and measures developed for use with majority populations; their cross-cultural equivalency may not have been assessed for immigrant and ethnic populations (e.g., dietary measures).

- Response rates may be affected by linguistic and cultural factors; few national surveys are conducted in languages other than the official languages of the host country. (Chen, Ng, & Wilkins, 1996a; Kliewer & Jones, 1997; Laroche, 2000; Parakulam, Krishnan, & Okynak, 1992; Wen, Goel, & Williams, 1996).

FINDINGS

SOCIODEMOGRAPHICS

There is extensive heterogeneity within the Ontario population of women with respect to immigrant status, source country, length of stay, category of migration, "visibility," and knowledge of host country languages.

According to data from the 1996 census, the total immigrant population of Ontario was 2.7 million, and immigrants represented over one-quarter of the provincial population (25.6 percent). This proportion was larger than the national figure (17.4 percent) and higher than that of other Canadian provinces. In 1999 more than half (54.8 percent) of the immigration applicants to Canada and their dependents applied to live in Ontario. Among applicants to major urban centres in Canada (Census Metropolitan Areas or CMAs), 43.9 percent applied to live in Toronto, 1.4 percent in Hamilton, 3.3 percent in Ottawa-Carleton, and 0.8 percent in London (Citizenship and Immigration Canada, 2000a).

The ethnic composition of Ontario's immigrants has changed dramatically since the 1950s. Throughout much of this century, the United Kingdom, the United States, and Europe have been the main sources of immigrants to Canada. In 1996 the leading source countries for immigrants were Hong Kong (9.1 percent), the People's Republic of China (7.4 percent), India (6.8 percent), the Philippines (6.8 percent) and Sri Lanka (6.8 percent) (Statistics Canada, 1997). Immigrants from Asian countries accounted for more than half of the recent arrivals, indicating an increase in Asian-source immigration from 33 percent in the 1970s, 12 percent in the 1960s and three percent prior to 1961. By contrast, the proportion of immigrants born in Europe has declined steadily with each wave of immigrants since 1961 (from 90 percent prior to 1961 to 19 percent in 1996).

Immigrants, particularly recent arrivals, were more likely than people born in Canada to live in urban centres. In 1996, 85 percent of all immigrants and 93 percent of those who arrived between 1991 and 1996 lived in a CMA. Toronto received 1.8 million immigrants in 1996, the largest immigrant population of all 25 Canadian CMAs. Approximately 441,000 or 42 percent of new arrivals to Canada settled in Toronto, nearly three times its share of the total Canadian population (15 percent) and a larger proportion than other urban centres (Montreal 13 percent, Vancouver 18 percent) (Statistics Canada, 1997). In 1999 the majority of immigrants to Toronto were from China (16.2 percent), followed by large numbers from India (10.8 percent), Pakistan (7.7 percent), Sri Lanka (4.2 percent), and the Philippines (3.9 percent). Nearly half of recent immigrants (less than five years) to Toronto were between the ages of 25 and 44. Among immigrants from the Philippines and Jamaica, the proportion of females was slightly higher than males but this was reversed in the case of other source countries such as Iran (Citizenship and Immigration Canada, 2000b).

Immigrants to Canada fall into several categories, depending on their reasons for leaving their country: economic class (skilled worker or business immigrant), family class, refugees, and "other" (caregivers or retirees, for example). Sometimes these categories become blurred, for example when family members of refugees reunite. In 1999 immigrants to Canada were classed in the following proportions: independent category (56 percent), family category (29 percent), refugee category (13 percent), and "other" (three percent) (Citizenship and Immigration Canada, 2000a). The representation of immigrant categories among newcomers to Toronto in 1999 was: economic class (60 percent), family class (28 percent), refugees (ten percent), and "other" (two percent). Within the "other" class were 655 live-in caregivers, the majority of whom were female (Citizenship and Immigration Canada, 2000b).

The five leading source countries for refugees to Canada in 1999 were Bosnia Herzegovina (11.1 percent), Sri Lanka (10.7 percent), Afghanistan (7.4 percent), Iran (5.9 percent), and Somalia (5.7 percent), and approximately one-third of refugees were female (Citizenship and Immigration Canada, 2000a). Detailed information is unavailable for Ontario, but it is estimated that nearly half the refugees admitted settled in Ontario, and of those, the majority settled in Toronto (Citizenship and Immigration Canada, 2000b).

In addition there are groups of people who violate Canada's Immigration Act by entering or staying in Canada illegally. These groups include individuals who travel with false documents, individuals with criminal records, illegal visitors, and persons working or attending school in Canada without Citizenship and Immigration Canada's permission. Although the total number of illegal immigrants in Canada is difficult to ascertain, 15,378 violations were investigated in 1998 (Citizenship and Immigration Canada, 1999).

According to the 1996 census, 11.2 percent of the Canadian population identified themselves as members of a visible minority group. About 30 percent of these individuals were born in Canada and the rest were immigrants. In Ontario, visible minorities represented 16 percent of the population and four out of five members of the visible minority population of Ontario lived in Toronto, comprising 32 percent of the total city population. Approximately one-quarter of the members of visible minorities in Toronto were Chinese and South Asian, 20 percent were Black, and 7.4 percent were Filipino (Statistics Canada, 1998).

According to the 1996 census, approximately 22 percent of the Ontario population had a mother tongue other than English or French. 25 percent of recent immigrants to Toronto spoke a language other than English or French at home, and 41 percent could speak neither English or French (Citizenship and Immigration Canada, 2000). Females accounted for 64 percent of the recent immigrants who couldn't speak English or French. Among older recent immigrants (45–64 years), 79 percent of females and 64 percent of males could speak neither English or French (Statistics Canada, 1997).

HEALTH OUTCOMES

Health status

The main source of data used to examine the health status of Canadian immigrants has been the National Population Health Survey (NPHS). Most of the literature reviewed suggested that recent immigrants to Canada, both male and female, particularly from non-European source countries, enjoyed many health advantages over long-term immigrants and the native-born population in terms of their overall health status and the prevalence of certain chronic diseases such as cancer and heart disease. Immigrant women, typically from non-European countries, also had higher life expectancies compared to Canadian-born women (Chen, Wilkins, & Ng, 1996) and lived longer without disability or dependency (Chen, Ng, & Wilkins, 1996). Consistent with these findings, a survey of newcomers to Ontario reported relatively few participants with life-threatening physical problems, chronic illness, or activity limitations (Matuk, 1996c).

However, the risk of immigrants' developing chronic diseases appeared to increase over several generations, and this increase was attributed to changes in determinants of health following migration (Chen, Ng, & Wilkins, 1996; Chen, Wilkins, & Ng, 1996). Evidence of the "healthy immigrant effect," that is, the observation that immigrants are often in superior health to the native-born population when they first arrive in a new country but lose this health advantage over time, has been documented in other countries as well, notably the United States (Stephen, Foote, Hendershot, & Schoenborn, 1994) and Australia (Donovan, d'Espaignet, Metron, & van Ommeren, 1992).

Cancer

Two types of studies were prominent in the literature. Migration studies, which compare mortality information using three cohorts, test whether exposure to the physical, social, cultural, and environmental factors in the host country results in a shift in mortality rates of migrants towards that of the native-born population. Generational studies, which compare mortality rates of first- and second-generation immigrants, attempt to understand the role of genetic versus environmental factors in disease development.

Kliewer and Smith (1995a, 1995b) conducted a migration study to compare the Standardized Mortality Ratios (SMR) for ovarian cancer (1984–88) and breast cancer (1964–89) for numerous immigrant groups in Australia and Canada. Among immigrants from low-risk countries, mortality rates for ovarian cancer generally increased and converged with those of the native-born. In the case of breast cancer, SMRs among 50 percent of the immigrant groups in Australia and 38 percent in Canada changed to approximate those of the host country population.

A study using data from the Canadian Mortality Database compared SMRs for cancer among South Asian immigrants, Chinese immigrants, and the Canadian-born population over a 15-year period (1979–93) (Sheth, Nair, Nargundkar, Anand, & Yusuf, 1999). For men, cancer mortality was highest among the Canadian-born group, intermediate among Chinese immigrants, and lowest among South Asian immigrants. In the female population, cancer mortality was higher among Canadian-born women and lower in both immigrant groups.

Balzi and colleagues (1995) conducted a generational study to analyze the cancer risk in Italian immigrants, their offspring (born in Canada), and the Canadian-born population. They found that the cancer risk among the offspring was intermediate between that of the host population and that of the Italian-born immigrant parents. Similar results were obtained when comparing cancers for which Italian immigrants had low risk (e.g., colon, lung, and breast cancers) and high risk (e.g., stomach cancer).

US studies provided additional evidence of increasing mortality from breast cancer over time (Flaskerud & Kim, 1999), especially among women who immigrated early in life (Carballo, Divino, & Zeric, 1998). Maskarinec (2000) compared breast cancer risk among women of Japanese ancestry living in Asia and in the United States and found that, while the first generation experienced only a small change in breast cancer rates, the second and third generations experienced considerable changes. Saphir (1997) cited similar findings.

Heart disease

Although heart disease is a major issue for Canadian women, much of the literature reviewed excluded women or did not examine the role of immigration or ethnic factors.

Data from the census and the Canadian Mortality Database (CMDB) were used to compare SMRs for heart disease among immigrants and the Canadian-born population (Nair, Nargundkar, Johansen, & Strachan, 1990). Findings suggested that mortality rates for both immigrants and the Canadian-born population decreased over the period of the study; however, the SMRs were consistently lower among immigrants compared to the Canadian-born population. Differences in mortality rates by immigrant country of origin were also observed.

In their study of differences in heart disease mortality rates among Canadian-born, South Asian-born, and Chinese-born populations, Sheth and colleagues (1999) worked with data from the census and the CMDB. Their findings indicated that for men, mortality from ischemic heart disease was higher among the South Asian- and the Canadian-born population, and significantly lower in the Chinese-born population. However, for women, mortality was higher among South Asians than in the Canadian-born group and Chinese immigrants. A significant decline in mortality was observed in all three groups over the study period.

Pomerleau and Ostbye (1997) examined differences in health characteristics, including self-reported rates of heart disease and hypertension, by immigrant place of birth (e.g., region, sub-region, and country of birth). Using data from the 1990 OHS, they observed no differences between immigrant groups once other risk factors were controlled for in the analysis, suggesting that place of birth did not exert an independent effect on disease occurrence.

Tuberculosis (TB)

Although immigration regulations require medical screening and prevent the entry of immigrants and refugees with active TB, immigrants account for a large proportion of TB cases in Canada. Most Canadian experts assert that the majority of TB in immigrants and refugees results from reactivation (i.e., previous infections becoming reactivated post-migration) and a smaller proportion from primary infection just prior to or post-migration (Styblo, 1989; Wilkins, 1996).

Although public concern has been expressed about the transmission of TB from foreign-born to native-born populations, evidence regarding the extent of transmission is limited. A cross-sectional tuberculin survey among non-BCG-vaccinated Canadian-born children and young adults in Montreal found no association between tuberculin reactions in individuals and reactions in neighbourhoods with a high proportion of immigrants from endemic areas (Menzies, Chan, & Vissandjee, 1997).

On the other hand, the risk of TB transmission within immigrant communities may be considerable (Carballo, Divino, & Zeric, 1998). According to these authors, not only do many immigrants originate from economically less developed countries where TB is still prevalent, but many move into living conditions that offer little protection from TB.

Kerbel (1997) investigated the latency period for TB among immigrants and refugees arriving in Ontario between 1989 and 1995. It was reported that the mean period between immigration and diagnosis was nine years, and 53 percent of patients presented within five years of resettlement. The study also suggested that the latency period might be shorter for refugees than for immigrants. Latency periods were longer among immigrants from the Philippines (seven years), Hong Kong (seven years), and South Asia (eight years) than they were among refugees from Somalia (two years), Ethiopia (three years), Sri Lanka (four years), and Afghanistan (four years). An analysis of TB data from Toronto revealed that the highest rates of TB among immigrants occurred within five years of their arrival in Canada (PHRED, 2000).

Unlike the case with chronic diseases, most immigrants with TB experience improvements in health status over time, given appropriate treatment and follow-up. However, factors such as stigma, substandard housing, and barriers to health care are associated with the experience and the persistence of TB (Kent, 1993; McSherry & Connor, 1993).

HIV/AIDS

Research on the prevalence of HIV and AIDS among Ontario immigrants from two HIV-endemic regions, the Caribbean and sub-Saharan Africa, was recently conducted using a two-stage modelling technique (Remis & Whittingham, 1999).

Some of the evidence from this research suggested that the prevalence of HIV/AIDS was increasing among immigrants to Ontario who were born in HIV-endemic countries. In 1997 and 1998, 14 percent of cases in the provincial surveillance system were attributed to immigrants from HIV-endemic countries, in comparison to 2.9 percent of cases from 1981 to 1995 (Remis & Wittingham, 1999). It was also estimated that 46 percent of the HIV infections among immigrants from the Caribbean and 30 percent of the infections among immigrants from sub-Saharan Africa were acquired in Canada. This has important implications, since policies and programs now in place in Canada could potentially prevent such infections.

Perinatal transmission of HIV (the transmission of HIV from an HIV-infected pregnant woman to her newborn child) can occur during gestation, during delivery, or after delivery through breast milk (Health Canada, April 2000a). Even though pediatric cases accounted for only a small percentage of the total reported AIDS cases, 82.7 percent of AIDS cases in children could be attributed to perinatal transmission. Heterosexual contact with individuals from an endemic country and heterosexual contact with a person at risk represented the two main exposure categories among adult women (Health Canada, April 2000a). Of the 281 HIV-infected mothers reported to the Ontario HIV Paediatric Network between 1984 and 1998, 41 percent were born to immigrant women from HIV-endemic countries (Remis & Wittingham, 1999). Another study reported that 70 percent of the mother-to-infant HIV transmissions in recent years were among immigrant women from sub-Saharan Africa and the Caribbean (Remis, King, Vernich, & Vermeulen, 1998).

Mental health

Arrival and resettlement in a new country often involves a period of significant readjustment and stress (Canadian Task Force, 1988; Canadian Council on Multicultural Health, 1989). Some theories emphasize the negative and stressful effects of this process on immigrants' health, while others propose that immigrants are a self-selected and resilient group who are less likely to experience psychological problems (Beiser, 1990; Flaskerud & Kim, 1999). Most of the literature reviewed suggested that after an initial risk period, immigrant mental health gradually improves over time and this improvement often extends into the second generation (Beiser & Hyman, 1997; Beiser, 1999).

According to Canadian Task Force (1988) findings, however, immigrant and refugee women have greater mental-health needs than their male counterparts. Few Canadian studies specifically examined the changing mental health of immigrant women in Canada. Franks and Faux (1990) found a high rate of depression among women of four ethnic groups (Chinese, Vietnamese, Portuguese, and Latin American). More recent arrivals had the lowest depression scores, suggesting that a group's past hardships make their present conditions seem more tolerable in the short run. A review of the literature on childbearing and mental health cited high rates of postpartum depression among immigrant women (Vissandjee, Weinfeld, & Dupéré, 2001). A recent review of Canadian research on immigrant and refugee women's health identified psychiatric symptoms attributable to trauma and multiple trauma such as rape as an important mental health issue for many refugee women (Mulvihill & Mailloux, 2000).

Suicide rates have also been used as an indicator of migrant mental health. Suicide has been identified by several newcomer communities to be a particularly sensitive and critical issue. A migration study conducted by Kliewer and Ward (1988) investigated factors influencing 1969–73 suicide rates among 25 immigrant groups in Canada. Their findings, based on age-standardized suicide rates, suggested that the suicide rates of immigrants converged with those of the destination native-born population. Among immigrants from low-risk countries (countries with lower suicide rates than Canada), suicide rates increased to those of Canada, and among immigrants from high-risk countries, suicide rates decreased. A subsequent study confirmed these results and further suggested that migration may be more deleterious for women than men (Kliewer, 1991). Strachan, Johansen, and Nair (1990) examined suicide rates in the Canadian-born population and first generation immigrants and found that in every age group except 65 years and over suicide rates were higher in the Canadian-born group; however, first-generation immigrant women had higher suicide mortality rates than their Canadian-born counterparts. These findings suggest that although migration does not lead to higher suicide rates, the risk of suicide may be higher among immigrant women than it is among immigrant men and immigrant seniors.

The needs of immigrant children and youth have also been neglected (Anisef & Kilbride, 2000). Some of the major issues identified for this age group relate to problems with school adjustment (e.g., marginalization, cultural conflict), parent-child relationships (e.g., communication difficulties, parental expectations), and intrapersonal conflicts (e.g., acculturation, ethnic identity, racism) (Anisef & Kilbride, 2000; Hyman, Beiser, & Vu, 2000). Generational differences in values regarding autonomy and freedom were identified as particularly salient post-migration stressors for female adolescents and youth (Hyman, Beiser, & Vu, 2000).

Perinatal health

Few Canadian studies have compared infant or perinatal mortality rates between immigrants and non-immigrants, or within immigrant or ethnic populations. Data are presently being analyzed from a study of 3,000 immigrant and refugee women who delivered at St. Joseph's Hospital in Toronto, the largest regional birthing centre with the lowest percentage of Canadian-born women in Ontario. In an upcoming study by Ford-Jones and colleagues, stillbirth and neonatal mortality rates will be examined for immigrant women by country of birth and length of time in Canada.

Two studies have examined the prevalence of low birth weight (LBW) and prematurity among immigrant women in Quebec. In one study, data collected by nurses of local community health and social service centres (CLSCs) during postnatal visits, were used to examine whether the risk of LBW and prematurity was higher among foreign-born mothers than among Canadian-born mothers, and to determine the impact of length of stay in Canada on outcome (Doucet, Baumgarten, & Infante-Rivard, 1992). The researchers concluded that foreign-born mothers did not experience a higher risk of LBW or prematurity than native-born mothers, and that length of stay was not significantly associated with birth outcomes. The second study provided evidence that the risk of LBW in immigrant women may vary by acculturation status (Hyman & Dussault, 1996). More acculturated mothers, as identified by two variables (place of birth [Canada/other country] and knowledge of English/French [Yes/No]), experienced significantly higher rates of term LBW than their less acculturated counterparts.

Mothers who identified themselves as immigrants and mothers who spoke a language other than English or French were more likely to breastfeed than were their non-immigrant, English- or French-speaking counterparts, as suggested by data from the NPHS and the National Longitudinal Survey of Children and Youth (NLSCY) (Health Canada, 1999a, 1999b; Maclean, 1998). Another Ottawa-based study confirmed that women who spoke other languages were more likely to breastfeed than English-speaking mothers (Green-Finestone, Feldman, Heick, & Luke, 1989). However, since breastfeeding rates in Canada could not be compared with breastfeeding rates in the countries of origin, no conclusions could be drawn regarding whether breastfeeding rates had increased or decreased after migration.

There was some evidence to suggest that refugee women may be at increased risk of poor pregnancy outcomes. An evaluation of the health status of 59 pregnant refugee women seeking asylum in Canada reported urinary tract infections, monilial infections, scabies, head lice, otitis media, intestinal parasites, other vaccine-preventable infections, low pregnancy weight gain, anemia, and female genital mutilation preventing pelvic examination in this group (Kahler, Sobota, & Hines, 1996). However, the extent to which these conditions occurred among refugee women in Canada or had persisted following migration was not determined. Preliminary data from Ford-Jones and colleagues (2000) suggested that the incidence of hepatitis B and rubella was more common among pregnant refugee women than among their Canadian-born counterparts, and that these conditions often went undetected for up to ten years after migration.

Diabetes

According to data from the NPHS, the prevalence rates of chronic conditions, including diabetes, increased from 37 percent among recent immigrants to 51 percent among long-term immigrants (Chen, Ng, & Wilkins, 1996). The distribution of diabetes by racial or ethnic group in the Canadian population aged 12 or over is known (3.2 percent of Whites, 3.8 percent of Blacks, and 5.4 percent of Aboriginal peoples not living on reserves). However, samples for other racial and ethnic groups were too small for population estimates to be made.

Analysis of NPHS data also found that the prevalence of excess weight (BMI >25) among immigrants increased with length of stay in Canada for both men and women. Female and Asian male immigrants who had been in Canada less than five years were less likely to be obese than their Canadian-born counterparts (Cairney & Ostbye, 1999).

Violence

Violence has also been identified as a major issue affecting the physical and mental well-being of immigrant women in Canada (George, 1998; Hyman, Guruge, Ahmad, & Stewart, 2000; Oxman-Martinez, Abdool, & Loiselle-Leonard, 2000; Sodhi, 1995).

Few data have been published on the extent of violence in communities of immigrant and visible minorities in Canada. Findings from the General Social Survey (1999) indicated that immigrant women in Ontario as a whole experienced fewer non-severe and severe forms of violence than their Canadian-born counterparts. However differences in rates of violence by country of origin or length of stay in Canada could not be examined owing to the small cell sizes. No differences were reported in rates and types of violence between women who were members of visible minority groups and those who were not (see Chapter 8).

This set of data was not used to examine determinants of violence. Sociodemographic factors such as marital status and socioeconomic status, witnessing family violence, a history of previous victimization, and women's access to and control of resources were among the personal factors identified in a WHO review of risk associated with domestic violence (WHO, 2000). Community-level factors such as levels of male-on-male violence, levels of male unemployment, male and female attitudes towards violence, and the availability of support services were also included (WHO, 2000).

DETERMINANTS OF HEALTH

It is unlikely that immigration affects health directly at a biological level. It has been suggested, rather, that the process of immigration and resettlement may influence determinants of health indirectly through such factors as changes in income and work, health behaviours, social support, stress, and health services utilization (HSU). There has been little specific research relating to these determinants of immigrant women's health and there are no published studies relating to determinants of immigrant women's health in Ontario.

Income, education, and work

It is well established that immigrants, especially women, are disproportionately poorer than the general population, making poverty a confounder of any relationship between immigration and health. The lives of many immigrant women are characterized by poverty, marginalization, gender inequities, and the social processes that reinforce them (e.g., underemployment, multiple role burden, loss of pre-existing support systems, and discrimination) (Oxman-Martinez, Abdool, & Loisell-Leonard, 2000; Vissandjee, Carignan, Gravel, & Leduc, 1998). In 1991, 16 percent of employed immigrant women worked in construction, product fabrication, or primary and processing occupations in comparison to ten percent of Canadian-born women (Statistics Canada, 1995). For immigrant women who work outside the home, occupational health and safety factors constitute other health determinants (Vissandjee, Weinfeld, Dupéré, & Abdool, 2001).

There is little published information on the socioeconomic characteristics of immigrants to Ontario except on recent immigrants (less than five years) to Toronto (Citizenship and Immigration Canada, 2000b). In this population, 39 percent were poor (vs. 14 percent among Canadian-born), 46 percent lived in crowded conditions (vs. four percent among Canadian born) and one in five lived with relatives in an extended family arrangement, twice the rate of the Canadian-born population. Of particular relevance to this report is the finding that both recent immigrant women and women who immigrated before 1990 had lower rates of participation in the labour force than their male counterparts. Furthermore, the observed disparities of education and labour force participation between the recent immigrant and Canadian-born populations were larger among female than among male immigrants.

Exhibit 25-1 presents data from the 1996/97 NPHS on educational and income levels of Ontario immigrant and visible minority women (20–64 years). In 1996/97, 7.4 percent of respondents were recent immigrants (less than ten years in Canada), 19.8 percent were immigrants who had been in Canada more than ten years, and the balance were Canadian-born. The majority of respondents were born in countries in Western Europe (16.2%), and only 13.3 percent of respondents claimed a race or colour other than "White." Although recent immigrants reported higher levels of education than their Canadian-born counterparts, their rates of poverty were more than double (29.7% vs. 13.2%). The same disparity was observed between women born in Asian and "other countries" and women born in Western European countries and in the visible minority population.

Exhibit 25-1. Immigrant and Visible Minority Women Aged 20–69 in Ontario by Education and Income

		Education	Income
	% Population	% Secondary School or Higher	% Low Income
Length of Stay			
Recent immigrant (<10yrs)	7.4	56.9	29.7
Long-term immigrant (>10yrs)	19.8	50.2	15.3
Canadian born	72.7	52.9	13.2
Place of Birth*			
Western Europe	16.2	55.1	12.7
Asia	7.2	65.0	25.5
Other	5.7	63.7	25.1
Visible Minority Status			
White	86.7	61.7	12.6
Other	13.3	65.9	25.0

Data Source: National Population Health Survey, cycle 2, 1996/97. public use microdata files health file [computer file].

* *Owing to minor differences in the proportion of the Ontario population who are Canadian-born using 'length of stay' and 'place of birth' (72.7%, 70.9%) respectively, percentages do not always add up to 100%.*

Few empirical studies examined the effects of poverty and its associated social processes on immigrant women's health and well-being (Janzen, 1998; Mulvihill & Mailloux, 2000). In the area of infectious disease, there was strong evidence that poverty, poor living conditions, substance abuse, and malnutrition were associated with the reactivation of TB and HIV infections (Kent, 1993; Decostas & Adrien, 1997; McSherry & Connor, 1993). Exposure to job strain, reduced autonomy, and long working hours are related to the development of chronic illness, particularly heart disease (Kaplan & Keil, 1993; Roxborough, 1996).

Health behaviours

Several studies have demonstrated a relationship between changes in immigrants' health behaviours and their health status. For example, differences in the extent to which immigrants adopt the host country's health behaviours (e.g., smoking) have been used to explain why cancer rates among immigrants converge with those of a native-born population over time (Kliewer & Smith, 1995b). Dietary changes such as an increased consumption of saturated fats and a lower intake of cereals compared to residents of their countries of origin been associated with increases in hypertension, diabetes, coronary heart disease and some cancers (Huang et al., 1996; Newell et al., 1988; Savage & Harlan, 1991). Alienation from traditional supports, internalization of negative host-society beliefs, and acculturative stress have been related to alcohol and drug abuse (Rogler, Cortes, & Malgady, 1991).

A number of Canadian studies have suggested that immigrant health behaviours change over time to resemble those of the majority culture. Previous research using data from the NPHS demonstrated that new immigrants smoked less, used less alcohol, and were less likely to be obese than longer-term immigrants (more than ten years) and resident Canadians (Beiser & Hyman, 1997). Data from a survey of newcomers to Windsor, Ontario, also indicated that newcomer men and women consumed less alcohol than their Canadian-born counterparts, but that alcohol use was more prevalent among newcomers with higher income and education (Matuk, 1996a).

Data from the 1996/97 NPHS confirmed many of the findings reported above (Exhibit 25-2). Recent immigrant women were less likely to be regular alcohol drinkers and smokers and less likely to be overweight than their Canadian born counterparts. However, they were also less likely to engage in regular physical activity. Women who were born in Asian countries and countries categorized as "other" were less likely to smoke and drink but also less likely to engage in regular physical activity than women born in Western countries and Canada. Members of visible minority groups were less likely to drink and smoke regularly and to be overweight, and were less likely to exercise than women in Ontario who were "White."

Exhibit 25-2. Health Behaviours of Immigrant and Visible Minority Women Aged 20–69 in Ontario

	Alcohol	Obesity	Physical Activity	Smoking
	% Not Regular Drinkers	% Overweight	% Physically Active	% Regular Smokers
Length of Stay				
Recent immigrant (<10yrs)	78.9	13.4	49.3	6.8
Long-term immigrant (>10yrs)	65.1	22.2	56.7	12.1
Canadian born	53.3	22.0	64.0	21.8
Place of Birth				
Western Europe	54.4	23.0	62.2	17.8
Asia	82.9	9.7	47.0	4.0
Other	78.9	23.4	51.2	5.2
Visible Minority Status				
White	47.6	22.1	64.5	23.6
Other	79.8	16.1	48.9	6.8

Data source: National Population Health Survey, cycle 2, 1996/97, public use microdata files, health file [computer file]

There is little published information on the socioeconomic characteristics of immigrants to Ontario except on recent immigrants (less than five years) to Toronto (Citizenship and Immigration Canada, 2000b). In this population, 39 percent were poor (vs. 14 percent among Canadian-born), 46 percent lived in crowded conditions (vs. four percent among Canadian born) and one in five lived with relatives in an extended family arrangement, twice the rate of the Canadian-born population. Of particular relevance to this report is the finding that both recent immigrant women and women who immigrated before 1990 had lower rates of participation in the labour force than their male counterparts. Furthermore, the observed disparities of education and labour force participation between the recent immigrant and Canadian-born populations were larger among female than among male immigrants.

Exhibit 25-1 presents data from the 1996/97 NPHS on educational and income levels of Ontario immigrant and visible minority women (20–64 years). In 1996/97, 7.4 percent of respondents were recent immigrants (less than ten years in Canada), 19.8 percent were immigrants who had been in Canada more than ten years, and the balance were Canadian-born. The majority of respondents were born in countries in Western Europe (16.2%), and only 13.3 percent of respondents claimed a race or colour other than "White." Although recent immigrants reported higher levels of education than their Canadian-born counterparts, their rates of poverty were more than double (29.7% vs. 13.2%). The same disparity was observed between women born in Asian and "other countries" and women born in Western European countries and in the visible minority population.

Exhibit 25-1. Immigrant and Visible Minority Women Aged 20–69 in Ontario by Education and Income

		Education	Income
	% Population	% Secondary School or Higher	% Low Income
Length of Stay			
Recent immigrant (<10yrs)	7.4	56.9	29.7
Long-term immigrant (>10yrs)	19.8	50.2	15.3
Canadian born	72.7	52.9	13.2
Place of Birth*			
Western Europe	16.2	55.1	12.7
Asia	7.2	65.0	25.5
Other	5.7	63.7	25.1
Visible Minority Status			
White	86.7	61.7	12.6
Other	13.3	65.9	25.0

Data Source: National Population Health Survey, cycle 2, 1996/97: public use microdata files: health file [computer file].

** Owing to minor differences in the proportion of the Ontario population who are Canadian-born using 'length of stay' and 'place of birth' (72.7%, 70.9%) respectively, percentages do not always add up to 100%.*

Few empirical studies examined the effects of poverty and its associated social processes on immigrant women's health and well-being (Janzen, 1998; Mulvihill & Mailloux, 2000). In the area of infectious disease, there was strong evidence that poverty, poor living conditions, substance abuse, and malnutrition were associated with the reactivation of TB and HIV infections (Kent, 1993; Decostas & Adrien, 1997; McSherry & Connor, 1993). Exposure to job strain, reduced autonomy, and long working hours are related to the development of chronic illness, particularly heart disease (Kaplan & Keil, 1993; Roxborough, 1996).

Health behaviours

Several studies have demonstrated a relationship between changes in immigrants' health behaviours and their health status. For example, differences in the extent to which immigrants adopt the host country's health behaviours (e.g., smoking) have been used to explain why cancer rates among immigrants converge with those of a native-born population over time (Kliewer & Smith, 1995b). Dietary changes such as an increased consumption of saturated fats and a lower intake of cereals compared to residents of their countries of origin been associated with increases in hypertension, diabetes, coronary heart disease and some cancers (Huang et al., 1996; Newell et al., 1988; Savage & Harlan, 1991). Alienation from traditional supports, internalization of negative host-society beliefs, and acculturative stress have been related to alcohol and drug abuse (Rogler, Cortes, & Malgady, 1991).

A number of Canadian studies have suggested that immigrant health behaviours change over time to resemble those of the majority culture. Previous research using data from the NPHS demonstrated that new immigrants smoked less, used less alcohol, and were less likely to be obese than longer-term immigrants (more than ten years) and resident Canadians (Beiser & Hyman, 1997). Data from a survey of newcomers to Windsor, Ontario, also indicated that newcomer men and women consumed less alcohol than their Canadian-born counterparts, but that alcohol use was more prevalent among newcomers with higher income and education (Matuk, 1996a).

Data from the 1996/97 NPHS confirmed many of the findings reported above (Exhibit 25-2). Recent immigrant women were less likely to be regular alcohol drinkers and smokers and less likely to be overweight than their Canadian-born counterparts. However, they were also less likely to engage in regular physical activity. Women who were born in Asian countries and countries categorized as "other" were less likely to smoke and drink but also less likely to engage in regular physical activity than women born in Western countries and Canada. Members of visible minority groups were less likely to drink and smoke regularly and to be overweight, and were less likely to exercise than women in Ontario who were "White."

Exhibit 25-2. Health Behaviours of Immigrant and Visible Minority Women Aged 20–69 in Ontario

	Alcohol	Obesity	Physical Activity	Smoking
	% Not Regular Drinkers	% Overweight	% Physically Active	% Regular Smokers
Length of Stay				
Recent immigrant (<10yrs)	78.9	13.4	49.3	6.8
Long-term immigrant (>10yrs)	65.1	22.2	56.7	12.1
Canadian born	53.3	22.0	64.0	21.8
Place of Birth				
Western Europe	54.4	23.0	62.2	17.8
Asia	82.9	9.7	47.0	4.0
Other	78.9	23.4	51.2	5.2
Visible Minority Status				
White	47.6	22.1	64.5	23.6
Other	79.8	16.1	48.9	6.8

Data source: National Population Health Survey, cycle 2, 1996/97 public use microdata files: health file [computer file]

Social support and stress

Many studies attest to the relationship between social support, stress, and health status in both immigrant and non-immigrant populations.

It has been hypothesized that migration to Western, industrialized societies is stressful and that this stress is associated with increases in blood pressure (Kasl & Berkman, 1983). Findings from the Whitehall I and II studies of British civil servants suggest that immigrants whose lives are characterized by underemployment and socioeconomic marginalization are at particularly high risk of heart disease (Vissandjee et al., 2001). Resettlement stress has also been associated with the development of TB in early years of resettlement (Davies, 1995; Grenville-Mathers & Clark, 1979; Powell, Meador, & Farer, 1981; Proust, 1971), with diabetes (Greenhalgh, 1997; Williams, Bhopal, & Hunt, 1994), and with mental health problems (Beiser & Hou, 2001; Beiser, Turner, & Ganesan, 1989).

Other research suggests that there is a need to refocus attention on immigrant women's capacities to maintain their health and well-being despite adversity. Attachment to the culture of one's country of origin is believed to exert a protective effect on health and well-being. The classic migration study by Marmot and Syme (1976) compared rates of heart disease among Japanese migrants to Hawaii and found that coronary heart disease was three to five times more prevalent among the subgroup considered to be the most acculturated to Western culture. In a study of low birth weight (LBW) among Latinos of Mexican descent, Scribner and Dwyer (1989) found that factors associated with a traditional Mexican cultural orientation were protective against the risk of LBW. Similar findings were reported by Hyman and Dussault (2000). Cultural retention has also been associated with maintaining health-enhancing behaviours such as the consumption of a traditional high-fibre diet, non-smoking, and non-use of alcohol and drugs (Escobar, 1998; Marmot & Syme, 1976; Scribner & Dwyer, 1989).

With respect to mental health, there was substantial evidence that support provided by a community of ethnic peers was associated with positive mental health outcomes (Beiser, 1988; Beiser, Turner, & Ganesan, 1989). According to Carballo and colleagues (1998), resettlement policies stressing the geographic dispersal of immigrants often contribute to isolation and impede social integration.

Health services utilization (HSU)

A number of studies have examined the use of health services by immigrants using data from the NPHS and provincial health records. A few studies collected primary data, and these dealt primarily with the use of mental and preventive health services.

Chen, Ng, and Wilkins (1996) used data from the 1994/95 NPHS to compare rates of HSU between immigrants and the Canadian-born population. In both the immigrant and Canadian-born populations, household income (low), gender (female), and education (low) were associated with a higher frequency of physician contacts. Globerman (1998) used the 1994/95 NPHS data to examine differences in the use of health-care professionals among four groups of immigrants to Canada: immigrants from US/Mexico, South America/Africa, Europe/Australia, and Asia. He found that differences between Canadian-born respondents and respondents from the four groups were quite modest. There was no significant difference in visits to physicians; Canadian-born individuals and European immigrants were marginally more likely to make frequent visits to specialists.

Wen and colleagues (1996) used the 1990 OHS data to examine whether contact with physicians and specialists and use of hospital emergency departments varied between immigrants and the Canadian-born population in Ontario. Overall, the use of health services was similar between the two groups. Recent Asian immigrants in particular had lower HSU rates for all three services than Asian immigrants who had been in Canada longer than ten years. Differences persisted even after controlling for differences in health status and age. However, underutilization of health services was evident in the use of preventive health services and mental health services.

In a study of the help-seeking behaviours of 2,246 anglophone Canadian-born, francophone Canadian-born, Vietnamese, Caribbean, and Filipino immigrants in an ethnically diverse neighbourhood in Montreal, Kirmayer and colleagues (1996) found that rates of HSU for mental health problems were significantly lower among immigrants. Immigrants were less likely to make use of primary-care mental health services, and still less likely to be referred to or to seek out specialty mental health care. These differences could not be accounted for by lower levels of need or by the use of alternative health providers.

Using data from the 1990 Ontario Health Survey, Hyman, Stewart, Cameron, and Singh (2000) found no large differences in the proportion of immigrant women and Canadian-born women who consulted a general practitioner about their health each year, or within groups of immigrant women by region of origin (Western Europe, Eastern Europe, South Asia, Southeast Asia, and the Caribbean). However, rates of cervical cancer screening among immigrant women from certain regions (notably Southeast Asia) were well below those of Canadian-born women (Hyman et al., 2000). Similar findings were reported in the use of mammography by Asian women (Maxwell, 1997). Using the same data set, Goel (1994) and Goel and Mercer (1999) determined that having been in Canada less than ten years and speaking a language other than English or French at home were significant predictors of never having had a Pap test or mammogram. Findings from the Newcomer's Health Survey conducted in Windsor, Ontario, and the Toronto Chinese Health Survey, a representative sample of 720 Toronto Chinese households, suggested similar patterns of underutilization of cancer screening among newcomer and non-English-speaking women (Matuk, 1996b; Yuan, Permaul-Woods, Barnsley, & Cockerill, 1998).

Data from the 1996/97 NPHS were used to examine the use of preventive health services (Pap screening, mammography screening, and use of a regular source of care) among immigrant and visible minority women in Ontario (Exhibit 25-3). The majority of women interviewed had a regular source of care (over 90%). However, recently immigrated women, immigrant women born in Asia, and visible minority women were slightly less likely to have a regular source of care than were longer-term immigrants, immigrants from Western Europe or "other" countries, and their "White" counterparts. Consistent with the findings reported above and with the health practices discussed in Chapter 18, approximately 22.3 percent of recently immigrated women and 12 percent of long-term immigrant women had never had a Pap test in comparison to 5.3 percent of Canadian-born women. Immigrant women born in Asian countries were more likely never to have had a Pap test than were immigrants born in Western Europe or "other" countries. With respect to mammography, 26 percent of recent immigrant women had never had a mammogram in comparison to long-term immigrant women (18.3%), and

Exhibit 25-3. Use of Preventive Health Services by Immigrant and Visible Minority Women Aged 20–69 in Ontario

	Source Of Health Care		Pap			Mammogram*	
	% With Regular Doctor	<3yrs	>3yrs	NEVER	<2yrs	>2yrs	NEVER
Length of Stay							
Recent immigrant (<10yrs)	89.9	72.8	4.9	22.3	66.2	7.8	26.0
Long-term immigrant (>10yrs)	96.7	67.8	20.2	12.0	65.9	15.8	18.3
Canadian born	96.6	69.9	24.9	5.3	67.6	13.7	18.7
Place of Birth*							
Western Europe	95.7	67.9	21.1	11.0	64.8	17.2	18.0
Asia	91.4	74.9	5.4	19.7	65.4	6.2	28.5
Other	94.4	66.9	17.8	15.4	70.6	12.7	16.8
Visible Minority Status							
White	95.6	69.5	23.7	6.8	67.0	14.7	18.2
Other	92.0	70.6	11.2	18.1	63.9	9.5	26.6

Data source: National Population Health Survey, cycle 2, 1996 1997 public use microdata files health file [computer file]

** Mammography results are based on Ontario women aged 50–69 years*

Canadian-born women (18.7%). Again, women born in Asian countries were more likely never to have had a mammogram than were immigrants born in Western Europe or "other" countries. Similar differences were observed between "White" and visible minority women in their use of Pap testing and mammography. It is notable that there was less variation between immigrant and visible minority groups in the proportion of women who engaged in regular screening (i.e., every three years for Pap and every two years for mammography). This finding suggests that once initial barriers to screening are overcome, immigrant and visible minority women are committed to continuing these preventive health practices.

Little quantitative information was available on the use of TB and HIV screening services among immigrants in Canada. However, it has been reported that approximately half of the immigrants targeted for post-landing TB surveillance never made contact with their local public health unit (Wobeser et al., 2000).

Differences in attitudes toward the health-care system, accessibility (cultural, geographic, linguistic, financial), appropriateness, and comprehensibility are seen to be particularly significant barriers for immigrant women (Hyman & Guruge, 2000; Mulvihill & Mailloux, 2000; Vissandjee et al., 1998). Many of the critical access issues for women were identified by the National Organization of Immigrant and Visible Minority Women of Canada (Simms, 1999). These issues included: isolation from mainstream society, created by differing cultural values; cultural belief systems and practices that create barriers; lack of access to culturally sensitive services, the inability of large numbers of immigrant and refugee women to speak English or French; the underrepresentation of immigrant and racial minority women in the health-care professions and on boards of directors of hospitals, universities, and other major institutions that not only train personnel but also set policies that determine the level and type of health care; compromised mental health care due to stigmatization for their immigration and socioeconomic status; and racism and general marginalization.

Exhibit 25-3. Use of Preventive Health Services by Immigrant and Visible Minority Women Aged 20–69 in Ontario

	Source Of Health Care	Pap			Mammogram*		
	% With Regular Doctor	<3yrs	>3yrs	NEVER	<2yrs	>2yrs	NEVER
Length of Stay							
Recent immigrant (<10yrs)	89.9	72.8	4.9	22.3	66.2	7.8	26.0
Long-term immigrant (>10yrs)	96.7	67.8	20.2	12.0	65.9	15.8	18.3
Canadian born	96.6	69.9	24.9	5.3	67.6	13.7	18.7
Place of Birth*							
Western Europe	95.7	67.9	21.1	11.0	64.8	17.2	18.0
Asia	91.4	74.9	5.4	19.7	65.4	6.2	28.5
Other	94.4	66.9	17.8	15.4	70.6	12.7	16.8
Visible Minority Status							
White	95.6	69.5	23.7	6.8	67.0	14.7	18.2
Other	92.0	70.6	11.2	18.1	63.9	9.5	26.6

Data source National Population Health Survey, cycle 2, 1996/1997: public use microdata files: health file [computer file].

** Mammography results are based on Ontario women aged 50–69 years.*

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Finally, there are obstacles in Ontario's health-care system which deter individuals from seeking the care they need. For example, although immigrants are eligible for health coverage, this is not immediately available in Ontario, and immigrants are often forced to purchase private insurance or pay out-of-pocket expenses. Essential health services for refugees are covered by the Interim Federal Health Program; however, problems such as bureaucratic intransigence, lack of adequate coverage, delayed reimbursement, and lack of knowledge of the program on the part of hospital emergency rooms, doctors, and pharmacies have been cited (Citizenship and Immigration Canada, 2001). It has been estimated that 15 to 20 percent of individuals who require treatment for TB, visitors and temporary workers, for example, do not have any health insurance.

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CHAPTER 26 – ABORIGINAL WOMEN

SHERRY L. GRACE

OVERVIEW

In traditional Aboriginal[1] cultures, women are considered to be the givers of life, and traditionally this role in the family was highly respected. However, many Aboriginal women face greater risks of complex health issues in a variety of areas than women in the general population (Statistics Canada, 1998), and this increased risk is partly attributable to their marginalized position in society and rapid change within their cultures (Indian and Northern Affairs Canada, 2000). For example, the life expectancy of Aboriginal women is significantly shorter than that of non-Aboriginal women (Statistics Canada, 1998). The suicide rate for Aboriginal adolescent girls is eight times the national average. The diabetes rate among Aboriginal peoples is ten times the Canadian rate, and is generally higher for women than men (Young, Reading, Elias, & O'Neil, 2000). Rates of cardiovascular (Anand & Tookenay, 2001) and respiratory diseases (Young, 1998), disability, infections, and mental health problems are all higher among Aboriginal women than in women in general. Aboriginal women suffer higher rates of cervical cancer (Marrett, 1998), sexually transmitted disease (Health Canada, 1999c), and cirrhosis of the liver than do their non-Aboriginal counterparts. A number of Aboriginal women and children are driven to relocate owing to domestic violence and lack of support, particularly in remote and isolated communities across the country (National Clearinghouse on Family Violence, 1997). The marginalized socioeconomic status of many Aboriginal women results in detrimental lifestyles, unsafe environments, and overcrowded housing. These conditions have an impact on the life chances and health status of many Aboriginal girls and women (Indian and Northern Affairs Canada, 2000).

METHODS AND INTERPRETIVE CAUTIONS

Since few data sources pertaining to the health of Aboriginal women in Ontario are available, the data presented here have been collected and compiled from data regarding urban and community women in Ontario; and when these are not available, national data are presented. The Ontario First Nations Regional Health Survey (OFNRHS) (MacMillan et al., 1998) presents representative data from Ontario First Nation women and children living in Aboriginal communities across the province. These rates were compared with those of Ontario respondents in general from the National Population Health Survey (NPHS; Statistics Canada, 1996). Statistics Canada has limited census data on Aboriginal women and children living in urban environments. The Aboriginal Peoples Survey (APS) (Statistics Canada, 1993) and the Royal Commission on Aboriginal Peoples Report (1996) also present some national data, but without comparison groups. The Ontario Federation of Indian Friendship Centres (2000) has recently published data on the health status of urban Aboriginal girls in Ontario. These data sources are reviewed, along with relevant published articles from the literature.

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[1] Please see glossary for definition of terms (i.e., First Nation, Aboriginal).

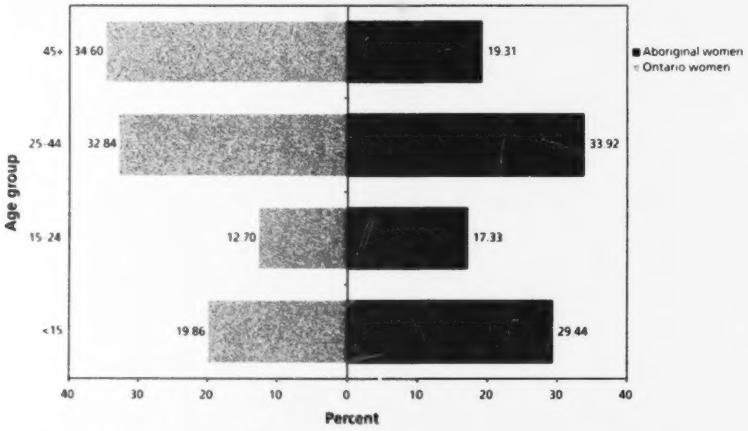
A few cautionary notes should be heeded. First, the definition of Aboriginal status is not very clear (for example, recognition of Métis status). Minimal data currently exist concerning Métis and Inuit women in Ontario. Therefore, the prevalence rates presented here are generally limited to First Nation (FN) women. Second, as a result of the review of limited secondary data related to Aboriginal women's health, the prevalence estimates may not be representative provincially owing to differing operational definitions and data collection methods. Moreover, First Nation communities have not been well represented in major Canadian longitudinal surveys: the National Population Health Survey (Statistics Canada, 1996), and the National Longitudinal Survey of Children and Youth (NLSCY). Even Canadian census data may not be accurate for Aboriginal groups for several reasons. The definition of "household" in Aboriginal communities is uncertain owing to the mobility of populations and household occupants. Moreover, 21 First Nation communities in Ontario declined to participate in Statistics Canada's 1991 enumeration process. Finally, the enumeration process excludes Aboriginals living in institutions, and yet statistics show that a high proportion of Aboriginal peoples are incarcerated (Ontario Native Women's Association, 1993) or living in psychiatric institutions in comparison to the general population (Kirmayer et al., 1994a).

FINDINGS AND DISCUSSION

SOCIODEMOGRAPHIC INFORMATION

In 2000 the Registered Aboriginal population in Ontario was reported to be 153,946, 51.6 percent of whom were female (Information Management Branch, 2001). Ontario has a larger population of Aboriginal people than any other province, and they make up 1.4 percent of Ontario's total population (Tait, 2001). In relation to the population of Canada as a whole, Ontario's Aboriginal population represents 21.7 percent of the First Nation population, 10.3 percent of the Métis, and 2.9 percent of the Inuit. Although data are not available specifically for Ontario, the majority of Aboriginal women in Canada (72.4 percent) live in rural or urban areas other than FN communities (Statistics Canada, 1998). Exhibit 26-1 portrays the Ontario and Aboriginal female population demographic by age.

Exhibit 26-1. Ontario Female Registered Indian Population and General Population, by Age



Data sources: Indian Affairs and Northern Development. Ottawa: Basic Departmental Data, 2000: Minister of Public Works and Government Services Canada.

The Aboriginal population is much younger than the non-Aboriginal population in Ontario. Almost half (46.8%) of the Aboriginal population is under the age of 24 years, in comparison to one-third (32.6%) of the non-Aboriginal population. Furthermore, there are relatively fewer Aboriginal people in older age groups. Only 3.7 percent of the Aboriginal population are aged 65 and over, (vs. 11.7% of the general population of Ontario) (Statistics Canada, 1998).

Reports suggest that fertility rates are much higher among members of the Aboriginal population than they are among Canadian women as a whole (Indian and Northern Affairs Canada, 2000). The crude birth rate of registered Indians in 1996 was 25 per 1,000 (12.2 per 1, 000 for the total population of Canada). The total fertility rate of registered Indians in 1996 was 2.7 (1.7 for the total population of Canada). Because the fertility rate of the Aboriginal population is about 69 percent higher than that of the population as a whole, the Aboriginal population is expected to increase significantly over the next two decades (Statistics Canada, 1998).

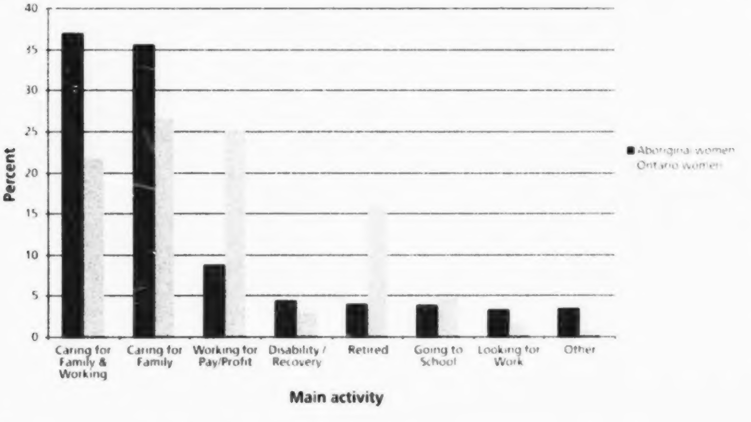
SOCIOECONOMIC ENVIRONMENT

Many Aboriginal women in Ontario suffer extreme poverty; most live on an average income of less than $14,000 per year. Although data are not available for Ontario specifically, in 1995, 34.5 percent of Aboriginal people in Canada were living below the low-income cut-off, more than double the provincial rate of 14.8 percent. Low incomes are particularly prevalent among young Aboriginal women between the ages of 18 and 24 years. In 1990, 41 percent of Aboriginal women within this age range lived in low-income households (vs. 22 percent of the general population of Canadian women). Compared with their non-Aboriginal counterparts, Aboriginal women have less formal education, higher levels of unemployment, and lower earnings, and are less likely to be employed in professional positions (Statistics Canada, 1995; National Steering Committee for the First Nations and Inuit Regional Health Survey, 1999). These disparities are more fully outlined below.

Although Aboriginal women have made gains in their educational attainment in recent years, they have less education than Canadians as a whole (Tait, 2001). In 1996, over half (54 percent) of Aboriginal women had not completed their secondary education, compared to 36 percent of non-Aboriginal women (Statistics Canada, 1998).

According to the OFNRHS data on "main activity," 36.9 percent of FN women in Ontario are caring for family as well as working for pay or profit; 35.5 percent are caring for family; 8.7 percent are working for pay or profit (see Exhibit 26-2 for comparative data) (MacMillan et al., 1998). Aboriginal women are much less likely than their non-Aboriginal counterparts to be part of the paid workforce in Canada. In 1996, 41 percent of Aboriginal women aged 15 years and over were employed, in contrast to 53 percent of their non-Aboriginal counterparts. Aboriginal women were also less likely to be employed than Aboriginal men, 48 percent of whom had jobs (Statistics Canada, 1998).

Exhibit 26-2. Current Main Activity for First Nations and Ontario Women, Aged 20 and Over



Data source: Ontario First Nations Regional Health Survey, 1998.

Poverty and food insecurity are also prevalent (MacMillan et al., 1998; Tait, 2001). According to data from the NLSCY study, urban Aboriginal families were overrepresented among those experiencing hunger (McIntyre, Connor, & Warren, 2000). This was particularly true for lone-parent families. Many Aboriginal women in Toronto live in impoverished social and economic conditions, particularly non-partnered women with children (Williams, 1997).

MORTALITY INDICATORS

Only limited information is available on patterns of mortality among Aboriginal women in Ontario. Data from the Canadian Mortality Database suggest an increased risk of mortality from alcoholism/liver cirrhosis, homicide, suicide, and pneumonia among Aboriginals. For Aboriginals living in FN communities, the risks for mortality from environmental and social causes (see Determinants of Health below) are particularly high (Mao, Moloughney, Semenciw, & Morrison, 1992).

Aboriginal women have higher all-cause mortality rates than Canadian women. While the major causes of death are similar for both groups, Registered Aboriginal women are more likely than the general population of Canadian women to die as a result of injuries, respiratory disease (e.g., pneumonia, bronchitis), infection, and "other" causes, while death resulting from circulatory problems (e.g., heart disease, stroke) and cancer are proportionately less common (Janzen, 1998). This finding may be related to differences in the age distribution of the population.

The newborn babies of Aboriginal women also face a heightened risk of mortality and poorer health status. In 1996 the infant mortality rate among registered Indians was 11.6 per 1,000 and in the total population of Canada was 6.1 per 1,000 (Indian and Northern Affairs Canada, 2000).

Life expectancy

Aboriginal women live longer than men (as in the general population); however, they do not live as long as women in the general Canadian population. In 1995 the life expectancy at birth was 76.2 years for Aboriginal women, and 69.1 years for Aboriginal men. In that same year, the life expectancy in the general Canadian population was 81.3 years for women and 75.4 years for men. Thus, Canadian women in the general population live 5.1 years longer than Aboriginal women (Indian Affairs and Northern Development, 2000). This gap is projected to decrease considerably over the next two decades (First Nations and Northern Statistics Section, 2001).

Heart disease and stroke

Although heart disease is known to be the leading cause of death and illness in the Canadian population, there is limited information about cardiac-related deaths among Aboriginal people, particularly Aboriginal women. First Nations populations in Canada had, until recent decades, been thought to experience lower cardiovascular disease death rates than the general population (Mao et al., 1992). However, recent data show that First Nations women experience higher death rates than the general Canadian female population for both ischemic heart disease and stroke (Anand, 2001; Shah, Hux, & Zinman, 2000).

One of the major risk conditions associated with heart disease is hypertension. A survey among Aboriginal people living in three northwestern Ontario rural communities found that the incidence of high blood pressure was 12.3 percent, compared with 15 percent in the general population (McIntyre, Connor, & Warren, 2000).

However, its prevalence increases dramatically among obese Aboriginals, those with diabetes mellitus, and those who smoke.

Cancer

Data on the frequency of cancer in all persons registered as status Indians in Ontario between 1968 and 1991 were collected by Cancer Care Ontario (Marrett, 1998). Age-standardized incidence of all cancer types was found to be 28 percent lower in Aboriginal women than in the Ontario population as a whole. However, certain types of cancers were more prevalent in the Aboriginal population: cervical cancer occurred 73 percent more often in Aboriginal women, renal cancer was slightly more common, and gallbladder cancer was found to be more than twice as high in Aboriginal women. These elevated rates of cervical cancer may result from the fact that among Aboriginal women, its diagnosis tends to occur at a more advanced stage of the disease (Health Canada, 1999d). Aboriginal women were found to have a lower incidence of cancer of the colon, breast, and uterus, and lymphoma than the general population (Mahoney & Michalek, 1991).

Suicide

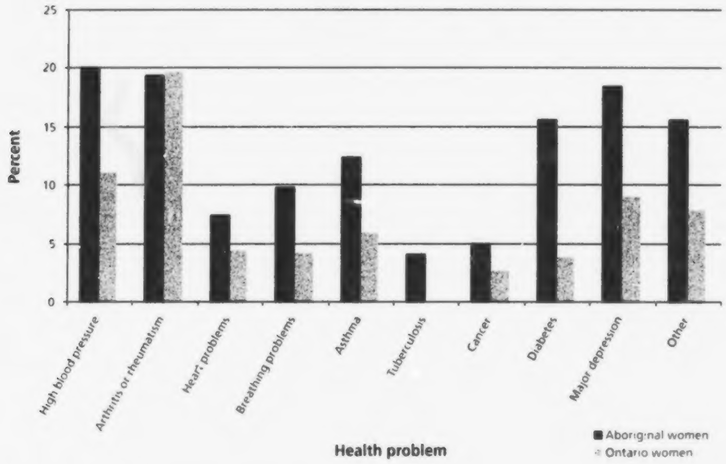
Data from a report prepared for the Royal Commission on Aboriginal Peoples indicate that suicide rates are consistently higher for the Aboriginal population than for the Canadian population as a whole (Kirmayer et al., 1994b; Spaulding, 1986). These rates vary over the lifespan, increasing in occurrence over the teenage years, and peaking around age 23 to 25. For instance, adolescent women who are status Indians are 7.5 times more likely to commit suicide than adolescent women in the total Canadian population. In the 20 to 29 year age range, the suicide rate for female status Indians is 3.6 times the rate for all Canadian women. Aboriginal women have higher suicide rates than all Canadian women up to 69 years of age, at which point the Aboriginal rate falls below that of all Canadian women (Medical Services Branch Steering Committee on Native Mental Health, 1991).

In both Aboriginal and non-Aboriginal populations, men may complete suicide more frequently than women, but women attempt suicide more frequently than men. Those who attempt suicide are more often single, separated, or divorced, and more apt to live in isolated regions. Suicide clusters pose a special problem in Aboriginal communities where many individuals are closely related and experience similar social problems; the impact of one suicide can be deeply felt within the whole community (Kirmayer et al., 1994b). Suicides most often occur in association with the abuse of substances such as solvents or alcohol (Kirmayer et al., 1994b).

MORBIDITY INDICATORS

Although health indicators paint a poor picture of Aboriginal women's health status, 77 percent of adult women in Aboriginal communities rate their health as good or better than average (National Steering Committee for the First Nations and Inuit Regional Health Survey, 1999). However, the rates of chronic health conditions (based on what respondents report being told by a health professional), are generally higher among First Nations than Ontario residents as a whole (see Exhibit 26-3) (MacMillan et al., 1998). Among Aboriginal persons living in Ontario FN communities, a higher proportion of women than men report health problems in the following areas: high blood pressure, back or spine, arthritis, digestive system, hay fever or allergies, mental health, emphysema or bronchitis, heart trouble, diabetes, and anemia; hepatitis and tuberculosis are the only exceptions (Myers, Calzavara, Cockerill, Marshall, & Bullock, 1993).

Exhibit 26-3. Percentage of Health Problems for First Nations and Ontario Women, Aged 20 and Over



Data source: Ontario First Nations Regional Health Survey, 1998.

Disability rates

Disability is defined as "any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being" (World Health Organization, 1980). Disability rates are higher among Aboriginal women than among Canadian women overall. According to the results of the Aboriginal Peoples Survey (Statistics Canada, 1993), approximately one-third of Aboriginal women reported some type of disability, in contrast to 13 percent of Canadian women. Age-standardized disability rates for Aboriginal women were also slightly higher than those of Aboriginal men, regardless of age. The high disability rates among Aboriginal youth may be associated with a higher incidence of accidents, violence, suicide attempts, inhalant abuse, and fetal alcohol syndrome (Ng, 1996).

Diabetes

Diabetes has reached epidemic proportions in Aboriginal communities, particularly in Northern Ontario. Among First Nations in northwestern Ontario, approximately seven percent have been diagnosed with Type 2 (or non-insulin dependent) diabetes (Morrison & Dooley, 1998). It is interesting to note that 65 percent of these cases were diagnosed in the last six years.

Gender differences in the prevalence of diabetes were examined in the First Nation and Inuit Regional Health Survey (FNIRHS) (National Steering Committee for the First Nations and Inuit Regional Health Survey, 1999). The prevalence of diabetes was 13 percent among women and eight percent among men. When age-adjusted to the Canadian population, the prevalence was 5.3 times higher among Aboriginal women than among Canadian women. Women are also diagnosed with diabetes at an earlier age than men (Fox, Harris, & Whalen-Brough, 1994). Aboriginal women who live in Aboriginal communities have five times greater risk of death from diabetes than Canadians nationally (Mao et al., 1992).

Additional information on diabetes in Aboriginal communities was obtained from a study in the remote community of Sandy Lake, where its prevalence reaches over 17 percent in residents over the age of ten. Through oral glucose tolerance surveys, the prevalence reaches as high as 25 percent among all adults in that community, and 80 percent among women aged 50 to 64 years (Harris, Caulfield, Sugamori, Whalen, & Henning, 1997). Diabetes is being diagnosed in very young children in Aboriginal communities in Northern Ontario. Having diabetes increases the likelihood of complications such as heart, foot, eye, kidney, and nerve problems at an early age, resulting in premature death, disability, and poor quality of life (DCCT Research Group, 1993; Gafvels, Lithner, & Borjeson, 1993).

Diabetes during pregnancy poses a major risk for women. The prevalence of diabetes in pregnancy in North America is approximately four percent. However, surveys in northern Ontario have shown that diabetes may affect as many as 12 percent of pregnancies among Aboriginal women (Harris et al., 1997). This high incidence substantially increases the risk of diabetes in the next generation, and poses significant health risks to both the mother and fetus (Jovanovic, 1998; Roberts, 1998).

Tuberculosis (TB)

Tuberculosis (TB) remains a major public health problem for Aboriginal peoples in Ontario. Although there has been a decline in infectious diseases (including TB) among some Aboriginal groups, the prevalence of TB has stabilized at a level that remains higher than in the general Canadian population (Young, 1998). These rates tend to be highest in more northerly and remote areas where communities were exposed later to TB by European settlers (Fitzgerald, Wang, & Elwood, 2000). In 1996, the incidence of TB in Aboriginal communities was six times higher than the rates for non-Aboriginal populations (Statistics Canada, 1998). In that same year, Aboriginal women accounted for 16 percent of the total number of reported new active and relapsed tuberculosis cases among women in Canada, whereas these women made up only three percent of the total female population that year.

Health behaviours

Obesity, insufficient nutrition, lack of physical activity, and tobacco use are all closely tied to health status. In the past, Canadian surveys demonstrated that Aboriginal populations were deficient in nutrient intake. Currently, Aboriginal peoples are shown to have a higher weight-for-age compared to Canadians nationally. For instance, obesity has been estimated at 60 to 70 percent among Aboriginal women from Northern Ontario, and Aboriginal women are heavier in all age groups than Canadians of European ancestry (Katzmarzyk & Malina, 1999; McIntyre & Shah, 1986). Central distribution of fat has been thought to be an adaptation to the cold (Katzmarzyk & Malina, 1998). This type of fat distribution is linked to diabetes and related metabolic disorders.

The decreased ability of Aboriginal peoples to live off the land (owing to natural resource development and associated exploration, and to wildlife migration) has increased their dependence on store-bought foods and led to the transition from a traditional diet to a more refined, high-fat, low-fibre diet. An analysis of food consumption from Oji-Cree in northern Ontario indicated that diets were high in total fat (36 percent of total calories), high in simple sugars (22 percent of total calories), and low in dietary fibre (Wolever et al., 1997). Dietary choices are also linked to financial constraints and the cost of foods in remote communities.

The erosion of traditional ways of life among some Aboriginal people has also resulted in the reduction or elimination of fishing, hunting, and trapping, leading to a more sedentary lifestyle (Dion Stout, Kipling, & Stout, 2001).

Tobacco use is associated with increased risk for many diseases (Janzen, 1998). The prevalence of smoking is higher among Aboriginal peoples than all other groups in Canada (Millar, 1992). In 1997 adult smoking rates within the Aboriginal population were highest among young people aged 20–24 (72 percent), and those aged 25–29 (71 percent) (Federal Provincial and Territory Advisory Committee on Population Health, 1999). Among Aboriginal communities in northwestern Ontario, the prevalence of smoking is 56 percent, in contrast to a rate of 31 percent for Ontario as a whole (McIntyre & Shah, 1986). Approximately 60 percent of Aboriginal women in Ontario smoke daily, and 45 percent smoke more than half a pack of 25 cigarettes daily (Myers et al., 1993).

HIV/AIDS

Although Aboriginal persons represent 2.4 percent of all AIDS cases in Canada, they represent an increasing percentage of AIDS cases. In comparison to non-Aboriginals, Aboriginal persons with HIV/AIDS are more likely to be younger, injection-drug users (vs. male-to-male transmission), and female (Health Canada, 1999b). Aboriginal women represent a higher percentage of cases of HIV/AIDS than non-Aboriginal women (15.9 percent vs. 7.0 percent). Within Aboriginal AIDS cases among women, 50 percent are attributed to intravenous drug use, in comparison to 17 percent of all cases in women (Health Canada, 1999d). Among Aboriginal women, exposure categories include: injection-drug use (47.6 percent), heterosexual contact (35.7 percent), receiving blood-clotting factors (9.5 percent), and perinatal transmission (4.8 percent) (University of Manitoba Northern Health Research Unit, 1999). It is clear that some Aboriginal communities are at increased risk for HIV infection because of their low socioeconomic status and high rates of sexually transmitted diseases, as well as the movement of Aboriginal persons between urban centres and FN communities (Myers et al., 1993; University of Manitoba Northern Health Research Unit, 1999).

Reproductive issues

Aboriginal women's traditional role as givers of life is shadowed by poor reproductive health in the modern era. Canadian Aboriginal women have rates of sexually transmitted diseases (STDs) as much as four times higher than the general population (University of Manitoba Northern Health Research Unit, 1999). Five percent of FN women in Ontario report that they had an STD at least once in their lifetime (Myers et al., 1993).

In regard to health screening, findings from the OFNRHS show that 87.5 percent of Ontario FN women have had a Pap smear in their lifetime. Only 22.5 percent have had a mammogram, but this could be due to the young demographic of the FN population and a lack of regular access to such breast screening services (MacMillan et al., 1998).

There is a high rate of adolescent pregnancy in Aboriginal communities (Statistics Canada, 2000). The birth rate for Aboriginal women is twice that of the overall Canadian women. Aboriginal mothers are younger than those in the non-Aboriginal population: (about 55 percent vs. 28 percent under 25 years; about nine percent vs. one percent under 19) (Health Canada, 1999d). Iron deficiency and low intake of vitamin D among pregnant Aboriginal women leads to greater health risks in Aboriginal infants (Moffatt, 1989).

Mental health

Depression, common in women in the general Canadian population, is also common among Aboriginal women. Paralleling the ratio of depression in women to men in non-Aboriginal communities, there is a higher ratio of major depression among Aboriginal women to men, and girls to boys (Kirmayer et al., 1994a). In the OFNRHS, approximately ten percent of FN women reported that they felt "everything was an effort" all or most of the time (MacMillan et al., 1998), a complaint that is an indicator of depressed mood. Almost 20 percent of FN women reported that they had talked to a health professional about their emotional or mental health in the past year, about twice the percentage of women in Ontario generally (MacMillan et al., 1998).

Anxiety is more difficult to measure because Aboriginal women's conditions of disadvantage and oppression may justifiably make them fearful of their own safety and future prospects (Kirmayer et al., 1994a). However, a great deal of attention has been focused on the possibility that many Aboriginal people suffer from trauma-related disorders. In some communities, family violence and sexual and physical abuse may be common, as well as exposure to violent death. Native communities have also faced long-standing stress in many forms — suppression of traditional ways, gender and ethnocultural oppression, dislocation of communities, and childhood separation from families — all of which may lead to post-traumatic stress disorder (Kirmayer et al., 1994a).

Addiction

Alcohol and substance abuse are considered to be major problems in Aboriginal communities (Kirmayer et al., 1994a; MacMillan et al., 1998). Aboriginal youth are two to six times more likely to suffer alcohol-related problems than their non-Aboriginal counterparts in the Canadian population (Scott, 1994). According to the OFNRHS and NPHS, when respondents were asked if they had consumed an alcoholic beverage in the last 12 months, 54 percent of FN women responded yes, and 74 percent of Ontario women responded yes. Five percent of FN women, and 12.7 percent of Ontario women drink two to three times per week. In response to being asked whether they had ever regularly drunk more than 12 drinks a week, however, 28.7 percent of FN women said yes and 5.2 percent of Ontario women said yes (MacMillan et al., 1998). These findings reflect a polarization of drinking patterns among Aboriginal women in Ontario, where fewer Aboriginal women drink moderately than non-Aboriginal women, but some are more prone towards heavy consumption (or binge drinking). Aboriginal women report that alcohol is related to violence in their communities (Ontario Native Women's Association, 1989).

Findings from the Ontario First Nations AIDS and Healthy Lifestyle Survey indicated that 14 percent of FN women in Ontario report having used either marijuana, cocaine, crack, LSD, glue, or gasoline in the previous month (Myers et al., 1993). Solvent use (i.e., inhalation of volatile substances such as gasoline, glue, and cleaning products) has been increasingly reported in isolated Aboriginal communities (Scott, 1994). One in five Aboriginal youth has used solvents and one-third of users are under the age of 15 years. Over half reported that they had begun to use solvents before reaching 11 years of age (Scott, 1994). Unfortunately, owing to the addictive potential of solvents and their tremendous toxicity, considerable permanent brain damage and other organ damage may occur (Kirmayer et al., 1994a). The crisis in some communities has been attributed to feelings of hopelessness among Aboriginal youth (Kirmayer et al., 1994b).

Violence indicators

Data on family violence in Aboriginal communities were available from the National Clearinghouse on Family Violence. At least three-quarters of Aboriginal women in Canada have been the victims of family violence (The National Clearinghouse on Family Violence, 1997). Retrospective reports of rates of child physical abuse are very high among FN women in Ontario. Over 55 percent of FN women reported physical abuse, and 31.8 percent reported severe physical abuse (MacMillan et al., 1998).

Victims of sexual assault are mainly women (National Crime Prevention Centre, 2000). Reported rates of sexual abuse are also very high in FN communities, with 45.5 percent of Aboriginal women reporting sexual abuse, and 43.6 percent reporting severe sexual abuse (MacMillan et al., 1998). The prevalence of sexual abuse is significantly higher among Aboriginal women than among non-Aboriginal women (44.8 percent vs. 30.1 percent). Aboriginal women who had been sexually abused were more likely than those who had not been abused to have had an abnormal Pap smear (Young & Katz, 1998). (For further information, see Chapter 8.)

Health services

Comparative data from the OFNRHS and NPHS show that FN peoples have more contact with nurses but less contact with family physicians than does the general population of Ontario. For instance, over the past 12 months, 34.3 percent of FN women and 8.9 percent of women in Ontario had seen a nurse for care or advice. Seventeen percent of FN women had seen a social worker or counsellor, while 6.6 percent of Ontario women had done the same. When asked about using the services of an alternative health-care provider (such as elders and traditional healers), 21.8 percent of FN women, and 4.9 percent of women in Ontario reported using such services in 1994. However, more FN respondents perceive greater unmet health-care needs than the general population (Health Canada, 1999a).

DETERMINANTS OF HEALTH

Indigenous peoples around the world have experienced ongoing and evolutionary socialization that has resulted in their marginalization and integration into a global culture. Loss of cultural identity, language, and way of life has been linked to high rates of depression, alcoholism, suicide, and violence in many communities, with the most dramatic impact on women and youth. This trend provides the backdrop for the health status of today's Aboriginal women in Ontario.

Aboriginal communities themselves are plagued by psychosocial and economic disadvantage. When asked which problems they were experiencing in their communities in Ontario, over 80 percent noted alcohol abuse, unemployment, tobacco and drug use, and diabetes as problems, and over 50 percent identified family violence, depression, cancer, and sexual abuse as problems (MacMillan et al., 1998). Overcrowded and dilapidated housing, unclean and limited supplies of water, and inadequate waste disposal systems all pose significant threats to the health of Aboriginal women in Ontario (Royal Commission on Aboriginal Peoples, 1996).

Overcrowded living conditions can lead to the transmission of infectious diseases, and increase the risk for injuries, mental health problems, family tensions, and violence (Indian Affairs and Northern Development, 1999).

High rates of many chronic diseases such as cancer, heart disease, and diabetes are likely related to the loss of the traditional ways. For instance, as populations undergo modernization, the prevalence of diabetes tends to increase. Thus, fattier diets with less fibre (owing to reliance on store-bought foods), lifestyles with less physical activity, and substantial stress are part of the problem. Before the 1950s, a diagnosis of Type 2 diabetes was rare in Aboriginal populations, and continues to be rare among the Inuit in the far North (Hegele, 1999).

CONCLUSIONS

Aboriginal women continue to experience poorer health status than the general provincial population. It is believed that this discrepancy in health is in part due to the widespread inequities that Aboriginal women face in the opportunities for health promotion, in their lack of a sense of control over their health, and most notably in socioeconomic conditions. The socioeconomic effects of poverty, isolation, limited access to sophisticated health-care systems, as well as language barriers and the diverse needs of Aboriginal women in this province may lead to the perpetuation of this detrimental health status in future generations of Aboriginal women. It has been suggested that traditional lifestyles prior to European contact may have been beneficial for Aboriginal women's health status.

Efforts to improve the situation of Aboriginal women in urban environments or in their communities should respect the cultural beliefs and values of their traditional ways. For instance, 58 percent of Aboriginals in Ontario want to learn more about Native spirituality (MacMillan et al., 1998). There is an obvious need for more culturally appropriate responses to care, incorporating traditional healers, the Medicine Wheel, the four directions (physical, spiritual, emotional, and mental health), elders (62 percent of FN seek assistance from elders), and the Sweat Lodge ceremony to ensure the cultural relevance of health services — and their greater success — among Aboriginal women in Ontario. With the transfer of control over health-care services to First Nations communities, and the growing acceptance of the value of traditional forms of medicine, it is hoped that the status of Aboriginal women's health in this province will improve significantly.

GLOSSARY

- *Aboriginal* — This term is used to refer to the indigenous inhabitants of Canada and their descendants. Aboriginal people are people of First Nation, Inuit, and Métis ancestry. In Canada, Aboriginal peoples may be classified as status Indians (people who are registered with the Federal Government as Indian), or non-status Indians (Aboriginal peoples who are not registered under the Indian Act).
- *First Nation* — This term came into common usage in the 1970s to replace the word "Indian," which many people found offensive. Although the term "First Nation" is widely used, no legal definition of it exists. Among its uses, the term "First Nations" or "First Nations peoples" refers to the Indian people in Canada, both Status and non-Status Indians, and Treaty Indians.
- *Inuit* — Arctic-dwelling peoples of Canada.
- *Métis* — People of mixed Aboriginal and French origin.

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CHAPTER 27 – RURAL AND NORTHERN WOMEN

ENZA GUCCIARDI AND ANNA BIRNIE-LEFCOVITCH

OVERVIEW

There is growing acceptance of the idea that people's health cannot be considered in isolation from the environment in which they live. Health is a "basic and dynamic force in our daily lives, influenced by our circumstances, our beliefs, our culture and our social, economic and physical environment" (Health Canada, 1986). Rural and northern women have a distinct health profile that is closely linked to their particular living conditions, which arise from the local, cultural, and regional background and the availability of health and social services.

METHODS

A literature review was conducted primarily of Ontario and Canadian studies. American data were also used to supplement this literature and to provide information when Canadian content was missing. For the purposes of this review, any materials that pertain to populations or regions referred to as "rural," "remote," "northern," "small town," or "isolated" were included.

INTERPRETIVE CAUTIONS

The definition of "rural" and "northern" varies in the scientific literature, but owing to their geographic and cultural similarities, the two are often grouped together, although some northern communities are large enough to be classified as urban. Statistics Canada defines "rural" and "small town" residents as residents of communities outside census metropolitan areas (with populations of at least 100,000) or census agglomerations (with populations of at least 10,000 and up to 99,999), and where less than 50 percent of the workforce commutes to a larger urban centre. However, the term "rural" may also be used to describe the extent of a community's access to medical services or physicians. A 1999 Canadian Medical Association survey of rural physicians showed that the most frequently mentioned characteristics of a rural community were: a high level of on-call responsibilities, long distances from a secondary referral centre, lack of specialist services, and too few family physicians (Canadian Medical Association, 2000).

Although access to health services is a problem for many medical conditions in rural and northern Ontario, only the most pressing issues among rural and northern women are covered in this chapter.

BACKGROUND

Census data from 1991 reveal that 31.6 percent of the Canadian population live in rural areas. Predominantly English and French speaking, and Aboriginal men and women populate mainly rural and northern Ontario, along with a very small concentration of ethnic groups (Northern Health Information Partnership & Cancer Care Ontario, 2000). The census indicates a growing rural population, particularly of retirees (Hutten-Czapski, 1998).

Low population density and isolation present unique challenges for the delivery of health care to rural and northern areas. Various facets of rural culture also create unique health-care needs that require population-specific assistance from health-care professionals and the health-care system. Growing concerns about the health of rural and northern Ontario women focus on limited facilities for both general and gender-specific health-care services (Kralj, 2001), social and geographical isolation (Adler, 1996), and poor self-care habits and health behaviours (Office of Alcohol, Drug, and Dependency Issues, 1996). The increase in population and the greater health care needs of the elderly are an extra strain on the limited health-care resources in rural Ontario (Hutten-Czapski, 1998).

SOCIAL DEMOGRAPHICS

In Canada rural women are found mainly on farms, in forest industry towns, fishing villages, and mining settlements (Office of Alcohol, 1996). Northern Ontario women suffer more than women in the rest of the province from low incomes (21.1 percent) and food insecurity (9.3 percent) (see Chapter 1 on demographics). The 1996 Ontario Health Survey indicated that unemployment rates were higher for northern Ontario women (12.2 percent) than the overall provincial rate (9.6 percent) (Sahai et al., 2000). In addition, a larger percentage of northern women had only a Grade 9 education or lower (13.5 percent vs. 10.0 percent) (Sahai et al., 2000). Low education levels and poor income, as well as unemployment, may undermine a woman's health status (Brunner, Shipley, Blane, Smith, & Marmot, 1999; Klompas & Shapiro, 1998). The fact that the economy in rural communities usually depends solely upon a single resource-based industry leads to boom and bust cycles, causing population and economic shifts that may also affect health status (Bavington, 1994). These health determinants, combined with the lack of health-care services experienced by rural and northern women can contribute to poor health outcomes.

HEALTH STATUS

Life expectancy for Ontario women is the lowest in northern and rural areas of the province (see Chapter 2). The lower life expectancy documented among rural and northern women can be attributed to their higher rates of heart disease and unintentional injuries. Furthermore, in areas where life expectancy is low, a high proportion of people live in poverty, have a poor education, and exhibit highly risky lifestyle behaviours such as smoking and unhealthy eating, all features highly prevalent among rural and northern women (see Chapter 2).

ACCESS TO HEALTH CARE

The availability of health-care services has been conceptualized under four headings: affordability, accessibility, availability, and acceptability (appropriateness) (Penchansky & Thomas, 1981). This framework is useful in examining the barriers to the health of women living in rural and northern Ontario.

Low incomes of those in rural Ontario can limit the affordability of supplementary health insurance, prescription drugs, travelling expenses, and services noninsured by OHIP (Penchansky & Thomas, 1981).

Geographic isolation from services continues to hamper the availability of and access to medical care. Examples of such obstacles include long distances to referral centres; lack of specialist services; insufficient numbers of general and family practitioners, particularly women physicians (Thorne, 1994); absence of new technologies, equipment, and laboratories; difficulty in obtaining locums; and lack of ambulance services (Kralj, 2001). These factors may prevent rural and northern residents from obtaining medical attention at early and more treatable stages of illness. In northern Ontario in particular, driving distances and long winters with hazardous road conditions and poor visibility may deter people from accessing timely medical care (Minore, Hill, Kurm, & Vergidis, 2001).

In 1995 the Ontario Ministry of Health, the Ontario Hospital Association, and the Ontario Medical Association jointly stated that the continued provision of basic physicians' services is at risk in most rural areas of Ontario (Scott, 1995). In rural Ontario, there is only one family physician for every 1,751 people, whereas the provincial rate is one for every 1,105 (Rourke, 1991). This shortage increases patients' demands on physicians' time and availability. In 2000, for instance, the Ontario College of Family Physicians released a survey showing that 26 percent of people outside major metropolitan areas had difficulty finding a family doctor, a number that was 25 percent higher than the provincial average (Society of Rural Physicians of Canada, 2001). The lack of health-care professionals (of all types) in rural and northern areas in Ontario and in Canada alike, creates high demand and long waiting lists for health practitioners and specialist in these areas (Kralj, 2001).

As a direct result of the lack of specialists in rural communities, many family physicians provide extensive hospital-based medical care in addition to office-based care, house calls, and maternity and nursing home care (Iglesias, Strachan, Ko, & Jones, 1999). In one Ontario study, 74.2 percent of rural family physicians did emergency department work, 58.7 percent did obstetrics, and 20.5 percent did anesthesia (Rourke, 1991). Rural medical practice has been described as unpredictable and disruptive of one's office practice, recreation, family life, and sleep (Rourke, Rourke, & Brown, 1996). This unique feature of rural practice poses special challenges for attracting and retaining many physicians in rural areas (Rourke, Rourke, & Brown, 1996).

ACCESS TO APPROPRIATE CARE AND SERVICES IN RURAL AND NORTHERN ONTARIO

Appropriate health-care services geared toward the specific needs of women are frequently unavailable in medical practices, treatment facilities, and programs found in rural Ontario. For instance, many rural areas lack health services specifically for women, such as breast screening clinics, sexual assault teams, women's shelters and counselling agencies (Jennissen, 1992). Although women may require gender-specific medical services, many services in rural communities are modelled on the needs of men and may overlook the special health-care needs of women (Booth & McLaughlin, 2000; Bushy, 1993).

CARDIOVASCULAR DISEASE (CVD)

Cardiovascular disease (CVD) is the single leading cause of mortality in northern Ontario (Sahai et al., 2000). According to the 1994/95 National Population Health Survey, northern Ontario had a 50 percent higher prevalence of CVD than urban areas in Ontario (Institute for Clinical Evaluative Sciences, 1999). Northern and rural Ontario also have higher rates of risk factors associated with CVD, which include smoking, high blood pressure, high dietary fat and serum lipids, obesity, diabetes, low-income living conditions, and low levels of education (Institute for Clinical Evaluative Sciences, 1999; Sahai et al., 2000).

A misconception held by both women (Fields, Savard, & Epstein, 1993) and their medical caregivers (Heart and Stroke Foundation, 1997) is that CVD is a lesser risk for women than for men. In fact, CVD is the primary cause of mortality for women in Ontario (Institute for Clinical Evaluative Sciences, 1999). Women in Ontario suffer more disability and death as a consequence of heart attacks and have more re-admissions to hospitals after their attacks than do men (Institute for Clinical Evaluative Sciences, 1999). Between 1993 and 1997, CVD accounted for 40 percent of deaths among both women (6,602) and men (7,474) in northern Ontario (Sahai et al., 2000). Although the percentage of deaths was the same for both women and men in northern Ontario, the evaluation and treatment of heart disease are different for women and men throughout Ontario. Reports show that women with suspected heart disease undergo fewer diagnostic tests and treatment procedures such as angioplasty and bypass surgery than men with heart disease (Institute for Clinical Evaluative Sciences, 1999).

Many northern Ontario communities do not have the full range of CVD services including cardiac rehabilitation, needed to provide the appropriate continuum of care. In northern Ontario, 35 percent of patients do not see a specialist within six months of a heart attack, as compared to 29 percent in the East and 16 to 20 percent in other regions. Half the patients in the North who do see a specialist wait 60 days for an appointment, whereas the norm elsewhere in the province is 30 to 40 days (Institute for Clinical Evaluative Sciences, 1999).

TEEN PREGNANCY

Unwanted and unexpected teen pregnancies are prevalent in all regions of Ontario. However, northern Ontario has one of the highest rates of teenage pregnancy in Ontario, second only to that of Toronto (see Chapter 14). A small study of 27 physicians in rural communities identified a large gap between the recommended prevention practices and their actual practices in regard to teenage pregnancy (Langille, Mann, & Gailiunas, 1997). This group of physicians reported that insufficient time and opportunity to interact with adolescents were the major barriers to their role in preventing teen pregnancy (Langille, Mann, & Gailiunas, 1997). Emergency contraception, or the "morning after" pill, is far less available in rural emergency departments than in urban centres (Hospital Report Research Collaborative, 2001). In areas of rural Ontario where women either saw female physicians or young physicians or had more time with nurses, there were lower rates of teenage pregnancy (Hippisley-Cox et al., 2000). In order to help prevent unwanted pregnancies, it is crucial for all rural physicians to be knowledgeable and feel comfortable about responding to the multiple needs of adolescent and young adults of both sexes (Hippisley-Cox et al., 2000).

OBSTETRICS

Only 39 percent of Ontario rural physicians reported having an obstetrician/gynecologist in their communities (Buske, 2000). Consequently, primary care physicians are left as the sole providers of maternity care, including cesarean sections. According to a 1999 survey among rural physicians by the Canadian Medical Association, 70 percent of the physicians reported that they performed normal deliveries, 55 percent said their communities could provide cesarean sections, but only 47 percent could provide epidural analgesia for labour and delivery (Buske, 2000).

Among the 55 general hospitals surveyed in northern Ontario, there was a 500 percent increase from 1981 to 1997 in those not able to offer hospital obstetrical care (Hutten-Czapski, 1999). If rural physicians opt out of obstetrics and no one else is available to provide obstetrical care, then women are forced to travel, often while in labour, to other medical centres (Hutten-Czapski, 1999). Studies in Canada (Black & Fyfe, 1984) and the United States (Allen & Kamradt, 1991; Iglesias et al., 1999; Larimore & Davis, 1995; Nesbitt, Connell, Hart, & Rosenblatt,1990) have documented significantly poorer pregnancy outcomes for communities that lack maternity services, even when the referral centre provides excellent standards of care. These results may also point to a lack of adequate prenatal care.

Furthermore, health-care providers in northern and rural Ontario are less likely than other regions in the province to offer maternal serum screening (MSS) routinely (Permaul-Woods et al., 1999). Providers stated that they were concerned about the social and cultural sensitivity of MSS and the availability of follow-up and abortion services (see Chapter 15), which limited their use (Permaul-Woods et al., 1999).

HYSTERECTOMY AND GYNECOLOGICAL PROBLEMS

Although age-adjusted hysterectomy rates fell in the early 1990s in virtually all regions, rates in some northern rural Ontario are almost triple those reported in some southern urban areas (Cohen & Hall, 1996). The higher hysterectomy rates found in northern, rural, and isolated regions of Ontario can be attributed to the use of hysterectomies by rural physicians as the primary management of discretionary indications or conditions such as abnormal uterine bleeding without trying alternative forms of treatment (Cohen & Hall, 1996). Higher rates of hysterectomy may also reflect a lack of knowledge among rural family physicians of alternate therapies for abnormal uterine bleeding or a lack of access to such treatments (Vigod, Leyland, & Stewart, 2001). According to the Society of Obstetricians and Gynaecologists of Canada, different forms of medical treatment (non-steroidal anti-inflammatories or hormones) or surgical alternatives (such as endometrial ablation) should be considered before resorting to hysterectomy (Society of Obstetricians and Gynaecologist of Canada, 2001). These hysterectomy rates may also indicate that women in rural communities wait longer before seeking medical attention for uterine bleeding, thereby limiting their treatment choices to hysterectomy, which is usually considered a treatment of last resort (Society of Obstetricians and Gynaecologists of Canada, 2001). A shortage of gynecologists in rural areas also hinders timely and adequate treatment of women with gynecologic problems.

CANCER SCREENING

Cervical cancer is a preventable disease, provided regular Papanicolaou (Pap) tests are performed (Northern Health Information Partnership & Cancer Care Ontario, 2000). Between 1987 and 1996, the incidence rate of cervical cancer in Ontario was 10.1 per 100, 000, whereas it was 12.4 per 100, 000 in northeastern Ontario and 11.5 per 100, 000 in northwestern Ontario (Northern Health Information Partnership & Cancer Care Ontario, 2000). Factors that increase the risk of cancer of the cervix include the lack of a Pap test or infrequent Pap tests, early age at first intercourse, a large number of sexual partners, smoking, and low socioeconomic status (Cancer Care Ontario, 2000). According to a physician-based study in rural Ontario, the physician's gender played an important role in the delivery of sex-sensitive examinations such as Pap tests and Clinical Breast Examination, where more female than male physicians performed these examinations in rural and northern Ontario, with the exception of mammography (Ahmad, Stewart, Cameron, & Hyman, 2001).

Rural residents with illnesses such as cancer may face challenges in receiving treatment from a tertiary-care centre. The cost, time, stresses, and hazards of travelling long distances (sometimes in bad weather) may make people miss appointments, cause delays in therapy, or deter patients from continuing treatment (Minore et al., 2001).

MENTAL HEALTH

Mental health may not depend on individual characteristics alone but may also involve the quality of interaction within a person's community and environment (Health and Welfare Canada, 1989). Social isolation, a feeling of separation from other people, and lack of services have all been found to affect the mental health of rural women (Office of Alcohol, Drug and Dependency Issues, 1996). Feelings of isolation are triggered primarily by rural women's spousal, family, and friendship relationships (Office of Alcohol, Drug and Dependency Issues, 1996; Wiebe, 1987). While the number of people to whom one can turn for help in small communities may be limited (Adam & Dieter, 1989), many such communities have strong informal social support networks.

Although the rates for suicide among women are more than twice as high in northern regions of Ontario as in the province as a whole (see Chapter 7), there is scant information on the incidence and prevalence of mental illness in rural and northern communities. Women are more likely than men in rural regions to suffer from the stresses associated with isolation, multiple roles, violence, and poverty because they have less power and mobility (Office of Alcohol, Drug and Dependency, 1996). Some rural women may also experience high levels of stress because they carry the sole responsibility for child-rearing and housework as well as undertaking farm work and paid employment (Foxhall, 2001). Levels of depression are particularly high among women with little personal support, little or no help with child-rearing, and few financial resources (Janzen, 1994).

Despite the general consensus that people in rural and northern areas of Ontario receive inadequate diagnostic and treatment services, researchers found, on the basis of data from the 1990 Mental Health Supplement of the Ontario Health Survey, that rural and urban individuals with mood disorders had similar patterns of health service use (Parikh, Wasylenki, Goering, & Wong, 1996). Using the same survey data, Lin and colleagues (1996) found that urban residents used mental health services at a slightly higher rate than rural residents. However, it is possible that higher utilization rates in urban areas are due either to the greater availability of health care resources or to the different help-seeking patterns of rural residents, which lead them to favour informal sources for help (Lin, Goering, Offord, Campbell, & Boyle, 1996). The data did show a particularly large discrepancy between need and service use among financially disadvantaged rural respondents (Lin, Goering, Offord, Campbell, & Boyle, 1996). The American literature reveals a lack of available rural mental-health providers to offer services such as diagnosis and treatment of post-traumatic stress disorder, affective disorders, suicide prevention, substance abuse treatment, crisis intervention, and individual counselling (Lishner, Richardson, Levine, & Patrick, 1996).

A survey conducted by mail to determine the perceptions of and attitudes toward the psychiatric services that were available in nursing homes and homes for the aged across Ontario reported that northern Ontario had the lowest perceived availability of a visiting psychiatrist in nursing homes (Conn, Lee, Steingart, & Silberfeld, 1992).

VIOLENCE

Although domestic violence is less frequently reported by rural women than by urban women in Ontario (see Chapter 8), the living conditions in rural and northern cultures in Ontario can make domestic violence harder to escape. Physical and social isolation, lack of anonymity, the distance to services and their scarcity (police service, social services, shelters, child care, counselling, and free legal services) present challenges for many rural women in reporting, seeking help, and fleeing abuse (Adler, 1996). Many rural women who decide to leave their partners face fears of poverty, decline in employment opportunities, lack of affordable housing, increased violence, and the loss of their home and community (Community Abuse Program of Rural Ontario, 1997; Martz & Sarauer, 2000).

Although abused rural women face similar problems to urban women, rural communities may not be as supportive in intervening and assisting women who wish to leave their abusive partners. Rural attitudes are generally conservative, often involving very traditional views of appropriate roles for women and men (Devink & Doherty, 1995; Martz & Sarauer, 2000). Intergenerational abuse is present in 90 percent of the rural women who experienced family violence in a Saskatchewan-based study (Martz & Sarauer, 2000). Therefore, women who seek support in dealing with violence in their lives may also have to break with the social norms of rural communities. If social institutions in one's community fail to label abusive behaviour as unacceptable, women may come to doubt their own judgement, blame themselves, and continue to live in shame and fear (Merritt-Gray & Wuest, 1995).

The social stigma resulting from a lack of privacy in rural areas may make women reluctant to disclose abuse and may stop them from seeking help, particularly in small communities where the health-care provider and emergency room staff know and may socialize with the patient's family and partner (Adler, 1996). Another reason why rural women may fail to disclose abuse is the significant danger they can face if their husband or partner finds out that others know about his abusive behaviour (Martz & Sarauer, 2000). The chronic shortage of mental health-care providers and ignorance about available services and resources in rural areas exacerbate the situation for abused women in rural communities.

SELF-CARE AND HEALTH BEHAVIOUR PRACTICES

Help-seeking behaviour may also vary among socioeconomic and geographic groups (Lin et al., 1996). Rural Canadian women tend to neglect medical self-care and do not generally practice healthy behaviours (Adler, 1996). Besides geographic isolation, other factors of rural life such as a lack of anonymity may further deter women in these areas from seeking medical and or emotional help (Office of Alcohol, Drug and Dependency, 1996). Women from rural communities are also more likely than those in urban areas to avoid seeking treatment for health problems that they regard as "unessential": these include poor vision, dental problems, taking medications, and getting health services that require supplementary payment or insurance (Office of Alcohol, Drug and Dependency, 1996). The long distances between home and the health-care facility are an added reason why women who traditionally neglect self-care fail to seek timely medical help (Booth, Kirchner, Fortney, Ross, & Rost, 2000).

Fatigue and exhaustion are common burdens faced by many rural women, owing to their staggering workloads. Some women work 95 to 105 hours per week, dividing their time among household chores, child-care, farm work, and off-farm jobs (to supplement inadequate farm incomes) (Office of Alcohol, Drug and Dependency, 1996). In 1990 it was reported that 46 percent of farm women were employed off the farm (Danes & Keskinen, 1990). These enormous workloads make certain activities impossible. For example, rural women may fail to attend treatment and self-care activities because of their overwhelming responsibilities (Office of Alcohol, Drug and Dependency, 1996).

SUBSTANCE USE

Although alcohol and drug use among women is recognized as an important health issue in Ontario, there are few data about women in rural settings (Office of Alcohol, Drug and Dependency, 1996). One can speculate that rural women experience an increased risk of substance abuse because of their greater exposure to associated risk factors such as low income, isolation, lower social and cultural status, and stress. It also appears that rural women are experiencing alcohol and drug intoxication at earlier ages than in the past (Boyd, 1998). Moreover, traumatic life events such as sexual abuse and violence, underlying mental health problems such as depression or anxiety, and day-to-day stresses such as a lack of support for child-care are often identified among women with substance-use problems (Office of Alcohol, Drug and Dependency, 1996).

SMOKING

While the overall rate of smoking is increasing among Canadian women aged 15 to 24, rural women appear to use tobacco products more frequently than urban women at similar ages (Office of Alcohol, Drug and Dependency, 1996). In northern Ontario, the proportion of adult women (25 percent) and men (29 percent) who classify themselves as "regular smokers" is the highest in the province (Public Health Research, Education & Development Partners, 2000). As is the case with adult smokers, teens from northern Ontario also report the highest provincial levels of regular smoking (16 percent) (Public Health Research, Education & Development Partners, 2000). These high rates of smoking among rural adolescents and adults increase their risk for lung cancer, cardiovascular and respiratory diseases, and a host of other health problems.

While there has been an increase in the age-standardized mortality rates for lung cancer in Canadian women over the past three decades (National Cancer Institute of Canada, 2000), the age-standardized incidence rates for lung cancer in northern Ontario women are even higher than the average rate for the province (Northern Health Information Partnership & Cancer Care Ontario, 2000). Incidence rates are significantly higher in northern Ontario, with the northeastern age-standardized rate at 48.7 per 100, 000 women and northwestern Ontario at 44.1 per 100,000 compared to the provincial rate of 39.9 per 100,000.

Women employed in shift-work frequently use tobacco as a way to cope with monotonous workplaces (Centre for Health Promotion, 1995; Office of Alcohol, Drug and Dependency, 1996). There is also a link between smoking and the high levels of stress that rural and northern women experience due to overly busy work and personal schedules as well as low income, lack of child-care facilities, employment inequities, relationship problems, and lack of social support (Office of Alcohol, Drug and Dependency, 1996).

ALCOHOL

Twenty-seven percent of northern Ontario respondents report drinking five or more drinks in one sitting once a month or more frequently (Public Health Research, Education & Development Partners, 2000). At ten percent, the reported rate of binge drinking among women in northern Ontario is higher than in all other parts of Ontario (Public Health Research, Education & Development Partners, 2000). In many cases, rural women who suffer from alcohol addiction are not adequately treated, if treated at all (Office of Alcohol, Drug and Dependency, 1996). As alcoholism among rural women defies traditional rural roles (Ettorre, 1992), their addiction is often secret and treatment is either lacking or inappropriately tailored to their needs (Booth et al., 2000).

In many rural areas there is a general ethos of being able to manage one's own problems. It is not considered acceptable to seek help for marital discord or alcohol problems (Martinez-Bradley & Blundall, 1989). A woman who is alcoholic represents a clear departure from traditional rural concepts of a woman's role, and the consequent stigmatization may prompt women to drink alone at home and to hide problematic drinking (Office of Alcohol, Drug and Dependency, 1996). As a result, many women who seek help may go to great lengths to avoid using services in their home county or region (Martinez-Bradley & Blundall, 1989) and delay treatment (Office of Alcohol, Drug and Dependency, 1996).

OBESITY

Considerable regional and rural/urban differences are seen in the patterns of obesity in Ontario. Obesity or "over-weightedness" (BMI >27 according to the 1996 OHS) is more prevalent in northern Ontario than in the rest of the province (Sahai et al., 2000). According to the 1996 Ontario Health Survey, 29 percent of women residing in northwestern and northeastern Ontario have a BMI over 27 (vs. 21 percent for all Ontario women) (Sahai et al., 2000). Furthermore, a greater proportion of women living in northern Ontario than women in other regions have a BMI higher than 30 (see Chapter 6).

SEXUALLY TRANSMITTED DISEASES AND CONDOM USE

In Ontario, between 1991 and 1996, the rates of reported sexually transmitted diseases (STDs) such as chlamydia in both males and females were high in Northern Ontario, second only to Toronto. The rates for pelvic inflammatory disease (PID) were highest in northern regions (7.6 percent vs. 3 percent for Ontario) (Public Health Research, Education & Development Partners, 2000) (see Chapter 4). Results from the 1990 Ontario Health Survey indicated that individuals living in rural areas were 33 percent less likely to report condom use in the previous year than those who lived in urban settings. However, urban/rural residency is not significantly associated with consistency of condom use (Kasenda, Calzavara, Johnson, & LeBlanc, 1997). According to the 1996/97 Ontario Health Survey, the percentage of teens in northern Ontario reporting ever having had sex (48 percent) and reporting failure to use a condom the last time they had sex (34 percent) was the highest in Ontario (Public Health Research, Education & Development, OHS 1996/97).

Rural residents, particularly teenagers, may perceive themselves to be at low risk because they live in rural communities. They also have less anonymous access to condoms (Kasenda et al., 1997), lack transportation, and have limited school sex education resources (DiCenso et al., 2001). It has been shown that students who report comfort in buying condoms in a store also report greater condom use (Svenson, Warnhagen, Godin, & Salmon, 1992). Fifty-seven percent of high school students in a rural community in South Central Alberta said that they felt uncomfortable about buying condoms and reported never using condoms during sexual activity. Males were less likely than females to favour condom use, particularly if they had a negative attitude toward buying them (43 percent for males vs. 12.5 percent for females) (Svenson et al., 1992). A similar study found that fewer rural students than urban students (28 percent vs. 38 percent) reported comfort in buying condoms (Varnhagen, Svenson, Godin, Johnson, & Salmon, 1991).

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Karey Iron has been with ICES since 1993. She has been involved in many research projects involving administrative and population health survey data and has coordinated many ICES-wide initiatives such as the Practice Atlas series. Her research interests include health determinants, population health, and health-care access and utilization. Ms. Iron holds an undergraduate degree in psychology from the University of Western Ontario and a MHSc in community health and epidemiology from the University of Toronto.

SUSAN JAGLAL, BSC, MSC, PHD

Susan Jaglal has been with ICES as an adjunct scientist since 1995. She is an assistant professor in the Department of Physical Therapy and the Graduate Department of Rehabilitation Science at the University of Toronto. She has cross-appointments in the departments of Public Health Sciences and Health Administration. Dr. Jaglal serves on several publication review boards and hospital and health-care committees, including the Musculoskeletal Committee of the Board of Sunnybrook and Women's College Health Sciences Centre (SWCHSC). She holds a BSc in microbiology, and an MSc and PhD in epidemiology from the University of Toronto.

HANS J. KREDER, MD, MPH, FRCSC

Hans Kreder joined ICES as an adjunct scientist in 1995. He is also a scientist in the Clinical Epidemiology Unit and an orthopedic surgeon at the Sunnybrook and Women's College Health Sciences Centre. Dr. Kreder is an associate professor at the University of Toronto with a primary appointment in Orthopedic Surgery and a cross-appointment in the Department of Health Policy Evaluation and Management. He has been involved with numerous committees concerned with orthopedic health-care issues. Dr. Kreder received an MD from the University of Toronto, and an MPH from the University of Washington in Seattle, WA.

ELIZABETH LIN, MSC, PHD

Elizabeth Lin joined ICES as an adjunct scientist in 1998. She has over ten years' experience in teaching, clinical trials, and epidemiology. Her primary appointment is as a research scientist in the Health Systems Research and Consulting Unit at the Centre for Addiction and Mental Health (Clarke Site) where she has served since 1989. She serves as a member of several mental health working groups and committees, including the International Consortium of Psychiatric Epidemiology. Dr. Lin earned an MSc and PhD in systems sciences and psychiatry from the University of Louisville. She also holds a degree in social anthropology from Harvard University.

PAUL S. LINKS, MD, FRCPC, MSC

Professor Paul Links of the University of Toronto, Department of Psychiatry, holds the Arthur Sommer Rotenberg Chair in Suicide Studies; the first in North America dedicated to suicide research. Dr. Links is the deputy chief of psychiatry of the St. Michael's Hospital's Mental Health Service, where he continues clinical work crucial to his research. He has published over 50 articles in scientific journals and two books. As an investigator he has received research grants from many agencies including Health and Welfare Canada, the Ontario Ministry of Health, the Ontario Mental Health Foundation, and the Canadian Institutes of Health Research. Dr. Links' clinical experience and expertise developed from working with both acutely suicidal and persistently suicidal individuals (those who face a life-and-death struggle on a daily basis and are at high risk of taking their own lives).

VERNA MAI, MD

Verna Mai is the director of screening programs in the Division of Preventive Oncology at Cancer Care Ontario. A graduate of the MD program at the University of Alberta, she completed her specialty training in community medicine at the University of Toronto and worked as medical officer of health at the Elgin–St. Thomas Health Unit and as associate medical officer of health and director of education and research at the Middlesex–London Health Unit, prior to her current position. Dr. Mai is also an assistant professor in the Department of Public Health Sciences, University of Toronto, and current chair of the National Committee for the Canadian Breast Cancer Screening Initiative.

DARSHAKA MALAVIARACHCHI, MSC

Dar Malaviarachchi holds a BSc in Biology and an MSc in community health and epidemiology from Dalhousie University. He has previously worked at Dalhousie University and the IWK-Grace Children's Hospital in Halifax. Mr. Malaviarachchi is currently the epidemiologist with the Public Health Research, Education and Development (PHRED) Program at the Sudbury and District Health Unit.

VALERIE MANN, PHD

Valerie Mann is a researcher with the Public Health Research, Education and Development program at the Kingston, Frontenac and Lennox, and Addington Health Unit. She has participated in a number of provincial projects funded by the Public Health Research, Education and Edvelopment program (PHRED). Dr. Mann holds a PhD in microbiology from Dalhousie University.

DOUG MANUEL, MD, MSC, FRCPC

Doug Manuel joined ICES as a scientist in 1999. He is also an assistant professor in the Department of Public Health Sciences, University of Toronto. He is actively involved in a number of hospital, provincial, and university working groups. Dr. Manuel has over ten years of experience as a clinician in rural and northern areas throughout Canada. He has an MD and specialty training in community medicine from Dalhousie University. He acquired an MSc in epidemiology from the University of Toronto.

CAMERON MUSTARD, SCD

Cameron Mustard completed his doctoral training in epidemiology, health policy, and behavioural sciences at the Johns Hopkins University School of Hygiene and Public Health. He was a member of the Manitoba Centre for Health Policy and Evaluation at the University of Manitoba before coming to Toronto in 1999. Dr. Mustard is an associate professor in the Department of Public Health Sciences at the University of Toronto and the associate director of the Population Health Program of the Canadian Institute for Advanced Research. He is the research director at the Institute for Work and Health and pursues his interests in the relationship between labour market experiences and health as a member of the Population/Workforce Studies group.

JENNIFER PAYNE, PHD

Jennifer Payne completed her doctoral training in epidemiology at the University of Toronto in 1998 and pursued her postdoctoral work at the Institute for Work & Health funded in part by the Population Health Program of the Canadian Institute for Advanced Research. As a member of the Population/Workforce Studies group of the Institute for Work & Health, she pursues her research interests in the areas of labour market experiences and health, and health services use for work-related injuries. Dr. Payne is an assistant professor in the Department of Public Health Sciences at the University of Toronto and a member of the College of Reviewers for the Canada Research Chairs Program.

LOUISE PICARD, BSCN, MSC(A)

Louise Picard is currently the Director of the Public Health Research Education and Development Division at the Sudbury and District Health Unit. She is also an adjunct professor in the School of Nursing at Laurentian University.

ROBERT S. REMIS, MD, MPH, FRCPC

Robert Remis received his medical degree at McGill University in 1972 and a master's degree in public health in epidemiology at the Harvard School of Public Health in 1981. Since 1997 he has been an associate professor at the Department of Public Health Sciences, University of Toronto under a mandate from the AIDS Bureau, Ministry of Health to help monitor the HIV epidemic in Ontario. Dr. Remis has published in the areas of foodborne illness, viral hepatitis, tuberculosis, and HIV, among others. His current research interests include seroepidemiologic studies, HIV surveillance, modelling, and mother-infant and sexual transmission of HIV.

ANNE RHODES, RN, PHD

Anne Rhodes began her career as a psychiatric nurse and trained to become an Epidemiologist with specific expertise in mental health services research. She works as a research scientist within the Arthur Sommer Rotenberg Chair in Suicide Studies and the Inner City Health Research Unit at St. Michael's Hospital, Toronto. Dr. Rhodes is an assistant professor in the Department of Psychiatry and is cross-appointed to the Department of Public Health Sciences at the University of Toronto.

HAJERA ROSTAM, BSC (HONS)

Hajera Rostam is currently working as a research assistant at Women's Health Department, University Health Network, Toronto General Hospital. She is also a program facilitator at the Hincks-Dellcrest Centre, Growing Together, Jumpstart Program, an early prevention program for children who have been identified to be at high risk for developing language, and for cognitive and emotional delays. Her research interests lie in the area of clinical psychology with underprivileged children and women.

SUSAN SCHULTZ, MA, MSC

Susan Schultz has been a research coordinator at ICES since 1999. She has a master's degree in health planning from the University of Waterloo and worked for three years with a community-based health program in the Philippines. She recently completed an MSc in epidemiology from the University of Toronto. Ms. Schultz's research interests include population health measures and determinants of health, and she has extensive experience working with the Ontario and National Population Health Surveys.

JILL SLACK, BPHE

Jill Slack has recently completed a Bachelor of Physical Education and Health at the University of Toronto and is currently pursuing an MSc degree at Brock University in the faculty of Applied Health Sciences. Her area of study includes examining the impact of exercise on women's cardiovascular and bone health. Ms. Slack is currently certified as a personal trainer and fitness instructor through the Canadian Personal Trainers Network and Ontario fitness Council.

DEBORAH STIENSTRA, PHD

Deborah Stienstra currently holds the Royal Bank Research Chair at the Canadian Centre on Disability Studies. She is also an associate professor of Politics at the University of Winnipeg. Dr. Stienstra leads several research teams in the area of disability studies, including on home-based work for workers with disabilities, the concerns of ethno-racial people with disabilities, and the history of advocacy of people with disabilities among others. With Patrick Kellerman, she undertook a major policy review of Canadian government responses to the employment, education, and income support of people with disabilities.

DONNA E. STEWART, MD, FRCPC

Donna E. Stewart is the Lillian Love Chair in Women's Health at the University Health Network and University of Toronto where she is also a professor in the Departments of Psychiatry, Obstetrics-Gynecology, Medicine, Anesthesia, Family and Community Medicine, and Surgery. Dr. Stewart is active as a women's health researcher, educator, advocate, and policy advisor nationally and internationally. She is author of over 100 published scientific papers and three books. She chairs the Section of Women's Mental Health for the American and World Psychiatric Associations, is a member of the Ontario Women's Health Council, and has been a visiting professor in Women's Health in North, Central and South America, Iceland, Europe, Africa, and Australia.

BRONWEN WALLER, MHSC

Bronwen Waller is a research officer at the Ontario Tobacco Research Unit. Her general interests include addiction patterns and prevalence and cessation.

J. IVAN WILLIAMS, MA, PHD

Jack Williams is vice president of research at the Toronto Rehabilitation Institute and a senior scientist at ICES. He was the deputy director of Research at ICES from 1992 to 1998 and its president and chief executive officer from 1998 to 2000. He is cross-appointed to the Clinical Epidemiology and Health Research Program at Sunnybrook and Women's College Health Sciences Centre. He is a professor in the departments of Family and Community Medicine and Public Health Sciences at the University of Toronto and holds appointments in its graduate programs in Dentistry, Community Health, Nursing Science, and Rehabilitation Science, as well as at the Institute of Medical Science. He received his PhD in sociology and demography from Florida State University in 1968.